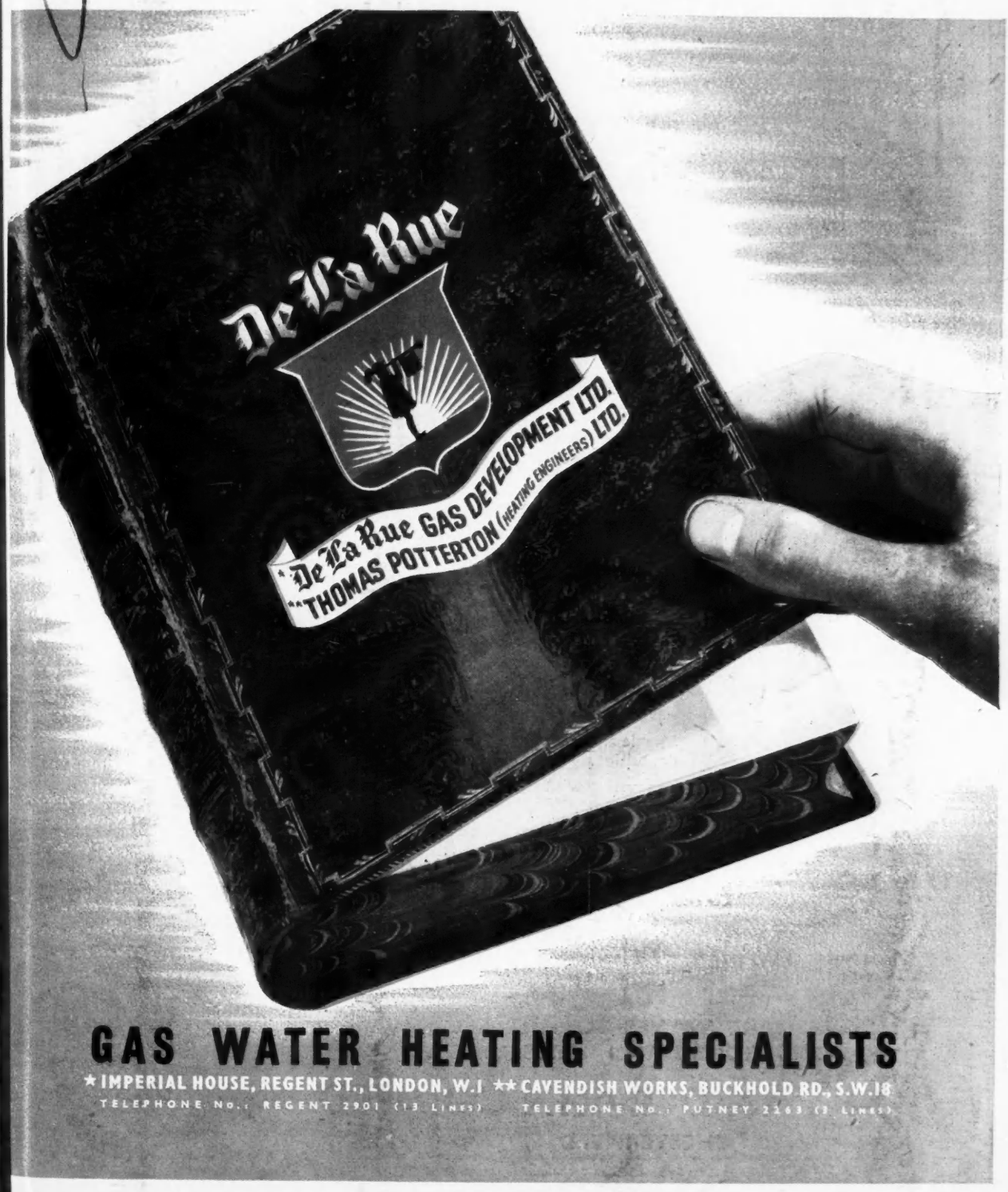
PUBLIC LIBRARY
OCT 20 1945

Gas Journal

LIGHT - HEAT - POWER - BY-PRODUCTS

Vol. 246. 97th Year. LONDON, OCTOBER 10, 1945. Registered as a Newspaper. No. 4299. Price 1/-



GAS WATER HEATING SPECIALISTS

★ IMPERIAL HOUSE, REGENT ST., LONDON, W.1 ★★ CAVENDISH WORKS, BUCKHOLD RD., S.W.18

TELEPHONE No.: REGENT 2901 (13 LINES) TELEPHONE No.: PUTNEY 2263 (3 LINES)

VI-TERNUS PAINTS

(LIFE) (STRENGTH)

VI-TERNUS

- **LIFE.** Sparkling scintillating flakes of Vi-ternus Ore which rise to the surface and give Vi-ternus Paints that extra life.
- **STRENGTH.** Turnus the Giant of the ancient Rutulians symbolised strength.

To-day VI-TERNUS means life and strength in Paints.

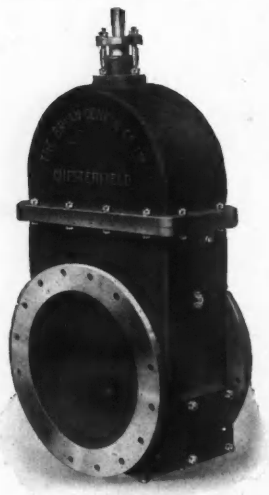
Write now for a supply, to

JOHN E. WILLIAMS LTD.

Partington, Manchester

GAS VALVES

Double Faced



"HICKS" TYPE.
For medium pressures up to about 5 lb. per square inch.

These valves have the following advantages :

Access to all working parts for cleaning while valve is under pressure.

Spindle and nut can be renewed while valve is in position.

The valve is of the parallel slide type and cannot jam.

The two doors are separate and held against the faces by means of springs. The faces are, therefore, cleaned each time the valve is opened or closed.

The valves can be provided with plugs to enable the faces and spindles to be lubricated whilst in position.

Full clear bore.

"BAURER" TYPE.
For high pressures up to 100 lb. per square inch.

WE MAKE VALVES TO SUIT ALL CONDITIONS AND PRESSURES

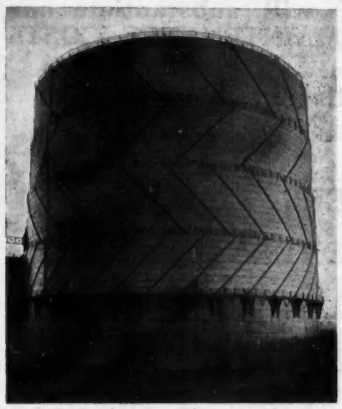
THE BRYAN DONKIN CO., LTD.

CHESTERFIELD

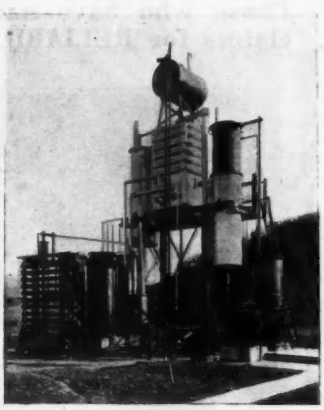
Members of the Society of British Gas Industries

GAS JOURNAL, OCT. 10, 1945

VOL. 246 97th YEAR No. 4299



A MODERN SPIRALLY-GUIDED HOLDER BY R. & J. D. LTD.



A TYPICAL BENZOLE PLANT BY R. & J. D. LTD.

Requirements essential to the modern Gas Engineer
& rightly demanded by him are
Just those aspects which are kept to the fore
when
Dempsters, (R. & J. Ltd.) of Manchester are
Evolving designs and details for Gas Works Plant.
Many types of Plant are dealt with, including
Purifiers and accessories,
Static Washers (in M.S. or C.I.),
Tar Extractors (P. & A. or Livesey types),
Electrostatic Detarrers,
Rotary Washer & Tower Scrubbers,
and also
Large and small Gasholders (Guide-framed, Spiral or MAN types),
Tanks, Condensers, By-Product and Water Gas Plants, etc., efficiently
Designed and manufactured at Gas Plant Works, Manchester 10.

NATIONAL SCHEME FOR DISABLED MEN

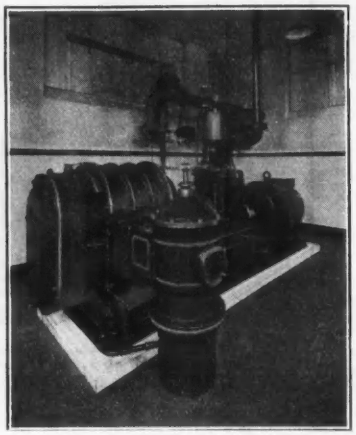
R. & J. DEMPSTER LTD.

HEAD OFFICE & WORKS:
GAS PLANT WORKS, MANCHESTER, 10
PHONE: COLLYHURST 2554-5-6
WIRE: "SCRUBBER, MANCHESTER"

LONDON BRANCH OFFICE: 34 VICTORIA STREET, S.W.1. PHONE: ABBEY 4426. WIRE: "SCRUBBER, SOWEST"

INDUBITABLY THE BEST

Those who have had experience of WALLER PLANT will substantiate our claims for RELIABILITY, LONG SERVICE and LOW MAINTENANCE COSTS



STEAM-DRIVEN ROOTS TYPE COMPRESSOR

We specialise in

EXHAUSTERS COMPRESSORS

BOOSTERS

REDUCING GOVERNORS

COKE BREAKERS

PAN ASH SEPARATORS

COKE WASHERS VALVES of all sizes

•

Write for separate Catalogues

Telegrams: WALLER STROUD

GEO. WALLER & SON, LTD.

PHOENIX IRON WORKS, STROUD, GLOS.

Members of the Society of British Gas Industries

Telephone: BRIMSCOMBE 2210

PASS

The Underpressure Specialists

Drill Stands
Pipe Cutting Machines
Underpressure Branch Connections
Inserted Valves etc.

PHONE 2038
DENTON 2561.

E. PASS & Co. LTD.

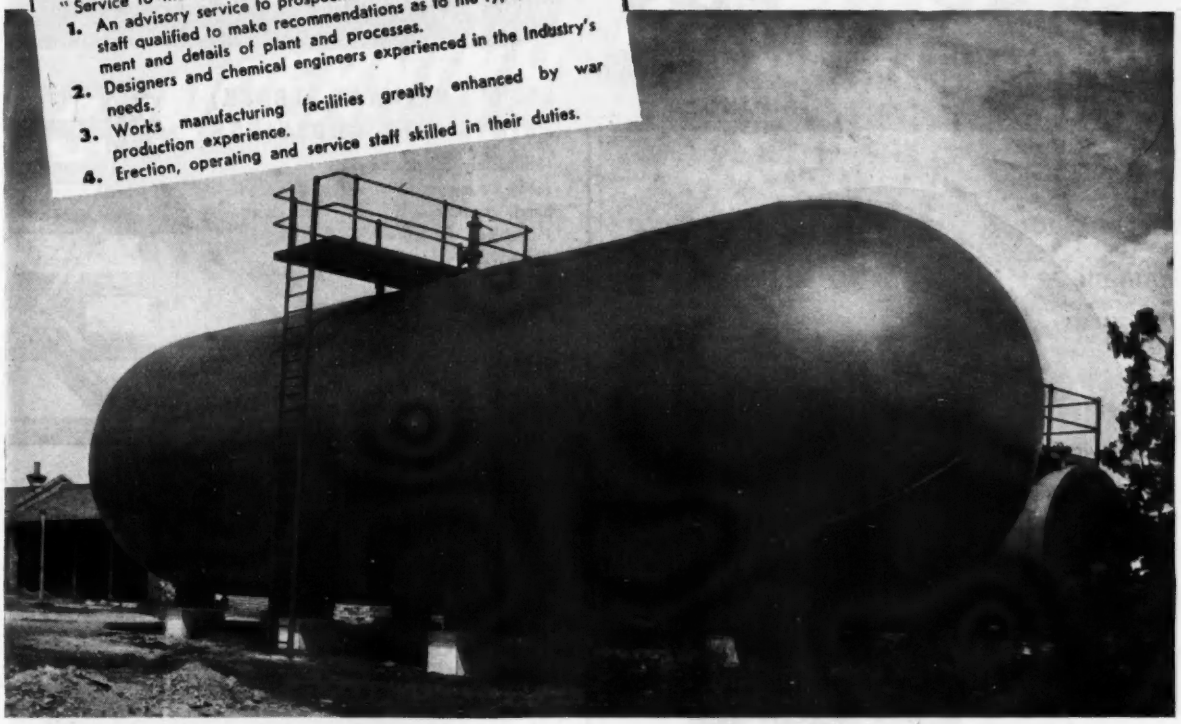
TELEGRAMS.
TOOLS DENTON LANCS.

GAS & WATER ENGINEERS. DENTON. LANCS.

SERVICE TO THE GAS INDUSTRY

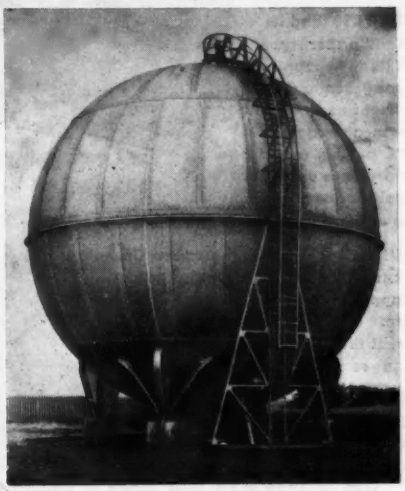
The steadfast policy of the Whessoe Company is based on "Service to the Gas Industry."

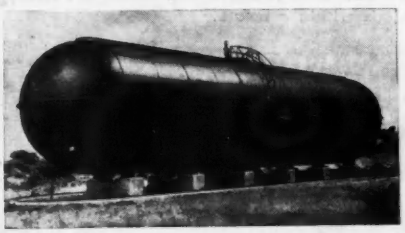
1. An advisory service to prospective clients provided by technical staff qualified to make recommendations as to the type, arrangement and details of plant and processes.
2. Designers and chemical engineers experienced in the Industry's needs.
3. Works manufacturing facilities greatly enhanced by war production experience.
4. Erection, operating and service staff skilled in their duties.



WHESSOE PRESSURE GASHOLDERS

Pressure holders ensure the maintenance of adequate district pressures during times of peak demand. The construction of pressure holders has been studied and practiced by the Whessoe Company for many years, and experienced advice is available on request. Whessoe installations include riveted and welded spheres and cylinders of various capacities and pressures to suit local needs and the economics of pressure storage and distribution.





Illustrated at top: Welded cylindrical holder, 40,000 cu. ft. releasable capacity.

Right: Two riveted holders, 162,000 cu. ft. capacity, both 50 lb. per sq. in. working pressure.

Enquiries invited, technical information gladly supplied.

WHESSOE

LONDON OFFICE: 25, VICTORIA ST., S.W.1. HEAD OFFICE & WORKS: DARLINGTON

THE WHESSOE FOUNDRY AND ENGINEERING COMPANY LTD

DEAD-BEAT RECORDERS

SIMMANC E PATENT

Type DBR 893 (and its "pendant" pattern type DBR892) can be supplied in all ranges from a total of 6/10ths of an in. water gauge to a maximum of 300 lbs. per sq. in.; for either pressure only, vacuum only, or combination of vacuum and pressure.

154 different charts *are stocked* (in thousands of each kind), and, as most are applicable to various units of vacuum and/or pressure, it will be apparent that something like 1000 different ranges can be provided.

Chart supplies: An adequate stock, based on potential demand, is held available to meet normal demand. Occasions do occur, however, when a run on a particular chart depletes stock temporarily. Our arrangements then make it possible to replace within a month.

ALEXANDER
WRIGHT & Co. Ltd.
1, WESTMINSTER PALACE GARDENS
'Phone: ABBey 2207 WESTMINSTER, S.W.1

Works Address (for Goods and Empties):
28, High Street, Tooting, S.W.17.

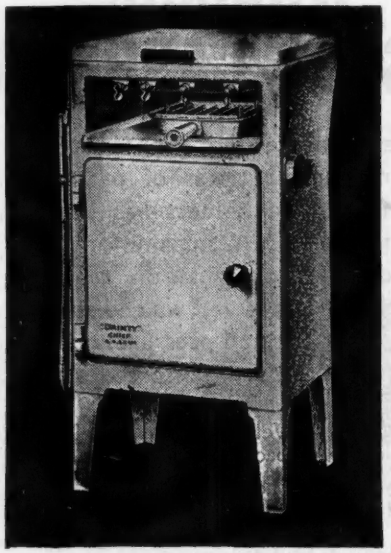
Alfred Allen & SON LIMITED
LOWER GORNAL, Nr DUDLEY
Telephone: Dudley 2460 & 2469

LIGHT RAILWAY TRACK, POINTS AND CROSSINGS

Completely fabricated on steel sleepers ready for laying down. Right-hand, left-hand, symmetrical and three-way. Portable Turntables of all types. Tip Waggons, Colliery Tubs, Brick Cars and special waggons of every description.

London Office: 23, Lawrence Lane, E.C.2. Telephone: MONarch 2978

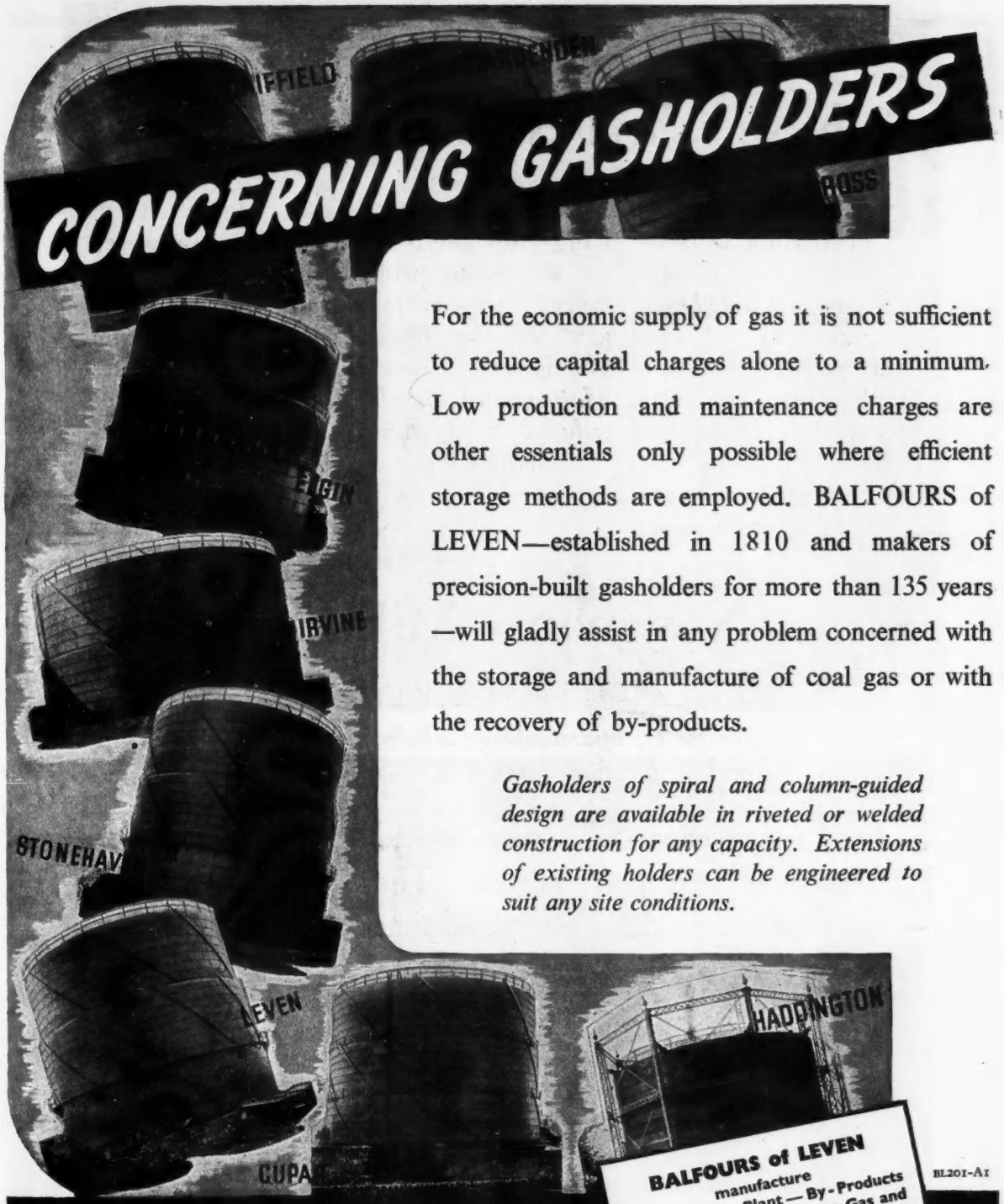
The DAINTY *Chief*



Streamlined modern design, cast iron construction and many other special features—notably economical consumption of gas.

R. RUSSELL & SONS LTD.
PEEL FOUNDRY, DERBY

Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO., 10, Blythswood St., GLASGOW, C.2.



CONCERNING GASHOLDERS

For the economic supply of gas it is not sufficient to reduce capital charges alone to a minimum. Low production and maintenance charges are other essentials only possible where efficient storage methods are employed. BALFOURS of LEVEN—established in 1810 and makers of precision-built gasholders for more than 135 years—will gladly assist in any problem concerned with the storage and manufacture of coal gas or with the recovery of by-products.

Gasholders of spiral and column-guided design are available in riveted or welded construction for any capacity. Extensions of existing holders can be engineered to suit any site conditions.

BALFOURS of LEVEN

manufacture Gas Works Plant — By-Products Recovery Plant — Producer Gas and Water Gas Plant — Benzol Distillation and Recovery Plant — Condensers — Purifiers — Ammonia Plant — Tanks for all purposes — Electric Welding Work — Alloy Equipment and Castings, etc., etc.

BL201-A1

HENRY BALFOUR

AND COMPANY LIMITED

DURIE FOUNDRY · LEVEN · FIFE

London Office ARTILLERY HOUSE · ARTILLERY ROW · LONDON · S.W.1 ABBEY 2121

These Valves These Virtues

One	Two	Three
Lubrication visually checked. *Complete freedom from sticking or seizing.* Film of insoluble plastic lubricant seals all possible leakage-points; acts as coating against corrosion or abrasion	Plug designed to be self-sealing with metal-to-metal joint at the head. No gland to pack. *Maintenance needs reduced to a sheer minimum*	Truly parallel plug, *always lubricated and in perfect contact with seating surfaces.* Eliminates jamming; ensures complete and continuous ease of operation, with bare minimum of wear

Newman - Millikens

The Valves of Virtues

for water, hydrocarbons, alkalis, acids, gases and for pressures up to 4,000 lbs. per sq. inch

For many years Bell's have staked their reputation on these lubricated plug valves. They are as perfect as can be in every detail and at all times and under all tests

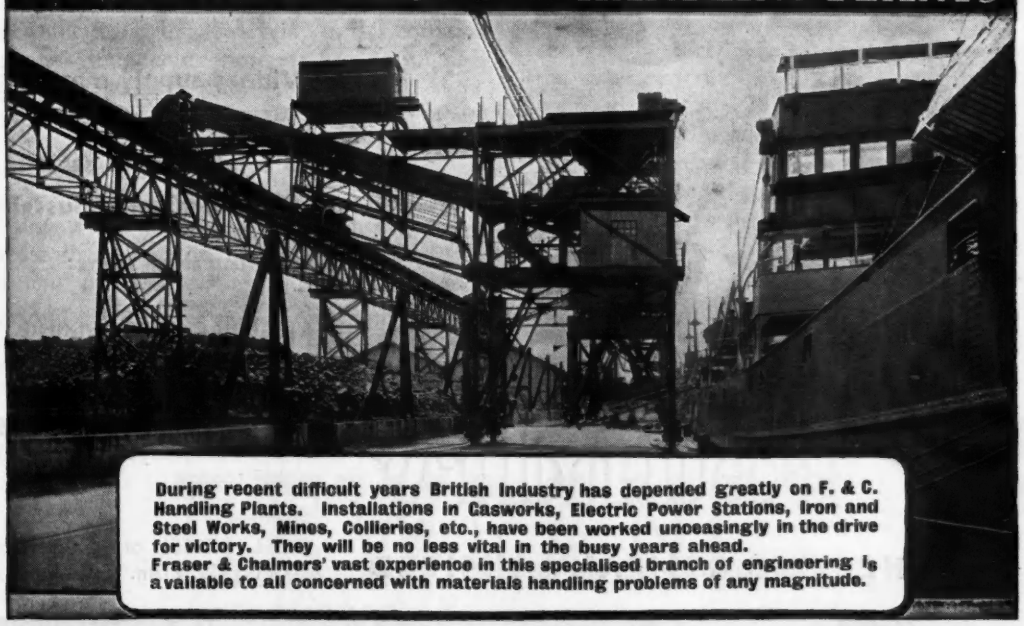
BESTOBELL

BELL'S ASBESTOS AND ENGINEERING LIMITED

SLOUGH Tel. No.: SLOUGH 20211 **BUCKS**

23 Branches (including 10 in the Dominions)

FRASER & CHALMERS (ROBINS SYSTEM) HANDLING PLANTS



During recent difficult years British Industry has depended greatly on F. & C. Handling Plants. Installations in Gasworks, Electric Power Stations, Iron and Steel Works, Mines, Collieries, etc., have been worked unceasingly in the drive for victory. They will be no less vital in the busy years ahead. Fraser & Chalmers' vast experience in this specialised branch of engineering is available to all concerned with materials handling problems of any magnitude.

Manufacturers:
FRASER & CHALMERS ENGINEERING WORKS . . . . ERITH, KENT
(Proprietors: The General Electric Co. Ltd.)
LONDON OFFICE: MAGNET HOUSE, KINGSWAY Associated with Robins Conveyors Incorporated

IN MORE WAYS THAN ONE

Widnes supply many types of high duty Iron Castings up to 25 tons for applications in the Chemical Industries.

The group above shows :

Top Left—
STEAM-JACKETED MIXING VESSEL. 8′ diam. x 10′ deep.

Top Right—
LARGE CAUSTIC POT. 9′ 9″ diam. x 9′ 8″ (inside dimensions) deep, 16¼ tons.

Below—
STEEL VESSEL of Welded construction. 12′ diam. x 30′ long, 25 tons.

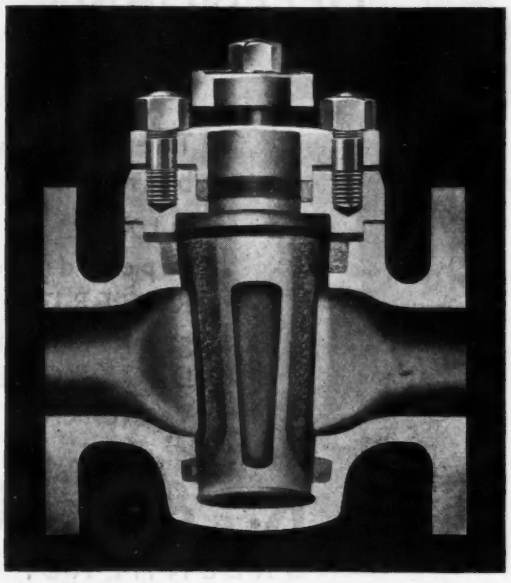
WIDNES Foundry
ENGINEERING COMPANY LIMITED

WORKS WIDNES LANCS
LONDON OFFICE BRETTENHAM HOUSE W.C.2. TEMPLE BAR 9631

NOTABLE DEVELOPMENTS IN ENGINEERING HISTORY, 5

1875

ASBESTOS PACKED COCK



The typical construction of an Asbestos Packed Cock is shown in the sectional illustration above; the plug has been removed to show the system of grooves in which the indurated asbestos packing is caulked.

SINCE 1844 the energies of the Dewrance organization have been directed to satisfying the requirements of steam users, and recent announcements have indicated some of our early achievements.

This enterprising spirit has also prompted many other inventions and innovations now commonplace to steam users. The Asbestos Packed Cock is an example, the method employed to form a seal against fluid pressure was an entirely new departure from orthodox practice, when we introduced it in 1875.

We were also the first to supply valves with renewable seats; first to develop in this country the glass toughening process; first to supply Water Gauges with Automatic Valves in both arms, as well as the originators of many other improvements in the construction of boiler mountings.

We were again first in utilizing solid steel forgings for a wide range of steam fittings, a feature in production that avoids the defects inherent in steel castings. The valves and seats are made of "DEWRANCALLOY," a special heat resisting non-corrodible alloy which we developed for important internal components of steam fittings.

In recent years our Patent Bi-colour Illuminated Water Level Indicator has been successfully introduced. By the application of a simple and direct optical principle the steam and water spaces in the Indicator are clearly shown in red and green respectively; no matter how rapidly the water may rise or fall in the sight glass, the contrasting colours change instantly with every fluctuation of the levels and enable the observer to take an exact and instantaneous reading.

If this brief record should be merely historical, it at least reflects the foresight and alertness of the Dewrance organization and establishes our claim to be foremost in the field in the production of high-grade boiler mountings and steam fittings.

Particulars of our latest products will be given in future announcements.

DEWRANCE

Established 1844 *& Co. Ltd.*

PIONEERS & SPECIALISTS IN PATENT VALVES & BOILER MOUNTINGS

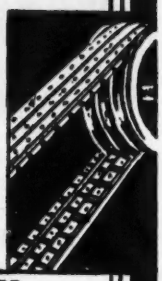
GREAT DOVER STREET, LONDON, S.E. 1. TELEPHONE: HOP 1244 (6 LINES)

DICK'S DRIVES

DEPENDABLE AND EFFICIENT

DICK'S ORIGINAL BALATA BELTING: The first and still the best.

DIXEL ROPES: The super drive, V-section.
RUBERIX: The belt with great gripping properties.
DICKROPE: The long life Vee Rope.

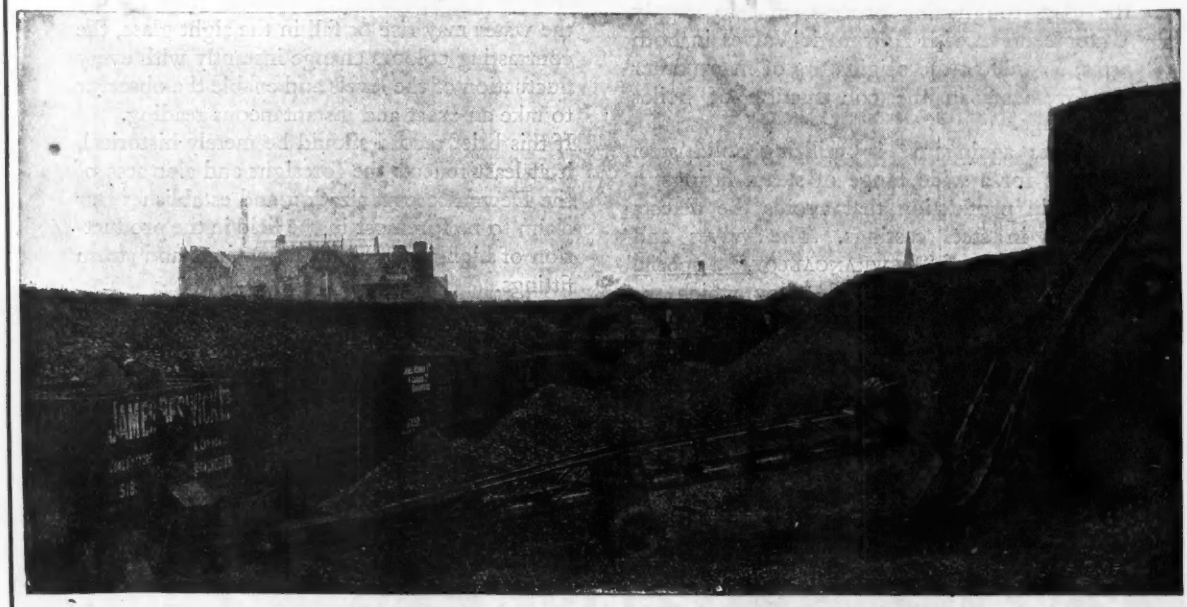


R. & J. DICK, LTD.

GREENHEAD, GLASGOW, S.E.

And at LONDON; BRISTOL; BIRMINGHAM; LEEDS; MANCHESTER; NEWCASTLE; BELFAST; DUBLIN and DUNDEE.

These conveyors cut costs by 75%



CRONE & TAYLOR LTD., SUTTON OAK, ST. HELENS, LANCS.

CONTENTS

EDITORIAL NOTES

Sir David Milne-Watson . . . 491
Teamwork Research 491

Personal 492

Wartime Activities 492
Diary 492
Sir David Milne-Watson, Bart. . . 493
Institution of Gas Engineers . . 495

Wartime Development at Airdrie. By David L. Dickson (*continued*) . 501

Gas Consolidation, Ltd. 507
Temperature Control in Industry . 507
Sheffield Civic Planning Exhibition . 507

Gas Products Prices 508
Gas Stocks and Shares 508

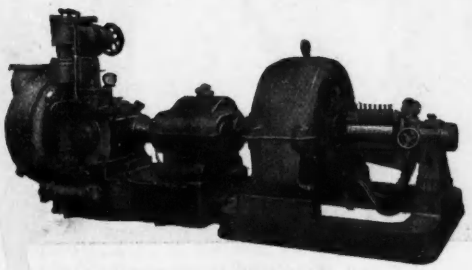
THIS WEEK'S ADVERTISERS

	PAGE
Allen, Alfred, & Son, Ltd. ...	482
Bale & Church, Ltd.	509
Balfour, Henry, & Co., Ltd. ...	483
Bell's Asbestos & Engineering, Ltd.	484
Blakeley, Firth, Sons & Co., Ltd. ...	509
Bray, George, & Co., Ltd. ...	S2
British Furnaces, Ltd.	S2
Broom & Wade, Ltd. ...	Cover IV
Brotherhood, Peter, Ltd.	489
Clayton, Son & Co., Ltd.... ...	S6
Clough (Croydon), Ltd. ...	Cover IV
Cowan, W. & B.	Cover III
Crone & Taylor, Ltd.	488
De La Rue Gas Development, Ltd.	Cover I
Dempster, Robert, & Sons, Ltd.	496, 509
Dempster, R. & J., Ltd. ...	479
Detel Products, Ltd.	S7
Dewrance & Co., Ltd.	487
Dick, R. & J., Ltd.	488
Donkin Co., Ltd. (The Bryan)	Cover II
Evans, Joseph, & Sons (Wolverhampton), Ltd.	S4
Fluxite, Ltd.	509
Friedman-Athill, Ltd.	485
Fraser & Chalmers Engineering Works	485
Gas Purification and Chemical Co., Ltd.	509
Glover, Thos., & Co., Ltd. ...	490
Goodall, Clayton & Co., Ltd.	Cover IV
Holmes, W. C., & Co., Ltd. ...	S1
Keith Blackman, Ltd.	S8
King, Geo. W., Ltd.	S7
Kleenoff Co.	S7
Main, R. & A., Ltd.	500
Mewburn, Ellis & Co.	509
Ministry of Fuel and Power ...	S3
Parkinson, W. & Co.	490
Pass, E., & Co., Ltd.	480
Peebles & Co., Ltd.	S5
Peckett & Sons, Ltd.	509
Potterton, T. (Heating Engineers), Ltd. ... ... Cover I,	502
Press, William, & Son ...	Cover IV
Radiation, Ltd.	498, 499
Redpath Brown & Co., Ltd. ...	S8
Russell, R., & Sons, Ltd. ...	482
Sawer & Purves, Ltd.	505
Steels Engineering Products, Ltd.	S5
Strachan & Henshaw, Ltd. ...	509
Technological Institute of Great Britain	510
Thomas & Bishop, Ltd.	508
Trotter, Haines & Corbett, Ltd.	509
Tully, Sons & Co., Ltd.	S7
Wakelin, F. H., Ltd.	510
Walker, C. & W., Ltd.	505
Walker, James, & Co., Ltd. ...	S4
Waller, Geo., & Son, Ltd. ...	480
West's Gas Improvement Co., Ltd.	506
Whessoe Foundry & Engineering Co., Ltd.	481
Widnes Foundry & Engineering Co., Ltd.	486
Willey & Co., Ltd.	S6
Williams, John E., Ltd. ...	Cover II
Wright, Alex., & Co., Ltd. ...	482
Trade Cards	508
Appointments Vacant and Wanted	510
Contracts Open	510
Educational	510
Patents	509
Plant, &c.	509
Plant, &c., For Sale and Wanted...	509
Publications	510
Repair Work	509

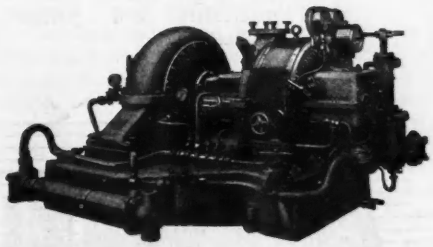
BROTHERHOOD
STEAM TURBINES FOR GASWORKS

Our Turbines, made for all powers up to 15,000 B.H.P. and for all conditions of service, are installed for driving Exhausters, Boosters, and Generators in many Gas Works, including:—

The Gas Light & Coke Co., South Suburban Gas Co., Wandsworth & District Gas Co., and in Works of Corporations and Companies at—Birmingham, Bristol, Coventry, Cardiff, Exeter, Liverpool, Manchester, Newcastle-on-Tyne, Preston, Portsmouth, Sheffield, Smethwick, Toronto, etc.



300 kW Back Pressure Geared Turbo-Generator.



Exhauster driven by 150 B.H.P. Steam Turbine at 13,000 r.p.m.

Brotherhood plant for Gas Works also includes Reciprocating Boosters, Water Cooling Towers, Air and Gas Compressors for all pressures and capacities.

PETER BROTHERHOOD LTD

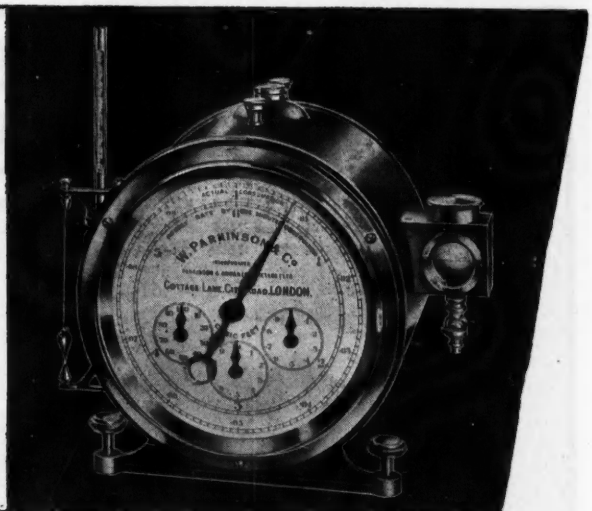
PETERBOROUGH :: Branch Offices in LONDON, LEEDS, MANCHESTER and GLASGOW

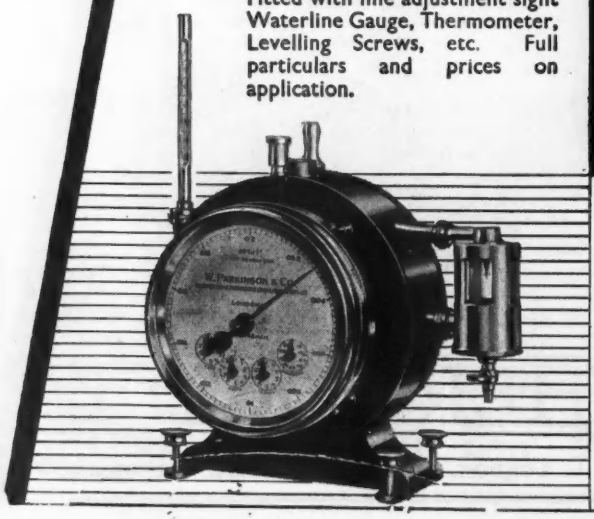
PARKINSON

TEST METERS

MADE IN VARIOUS SIZES

Fitted with fine adjustment sight Waterline Gauge, Thermometer, Levelling Screws, etc. Full particulars and prices on application.





W. PARKINSON & CO.
(Incorporated in Parkinson & Cowan (Gas Meters) Ltd.)
COTTAGE LANE,
CITY ROAD, LONDON, E.C.1.
Also at Birmingham and Belfast

THE SOCIETY OF BRITISH GAS INDUSTRIES · 1905 ·

P.4

GAS JOURNAL, OCT. 10, 1945

VOL. 246 97th YEAR No. 4299

EDITORIAL NOTES

SIR DAVID MILNE-WATSON

SIR DAVID MILNE-WATSON died on October 3; our Industry, by his passing, lost a great leader, a man who, as our obituary notice on page 493 shows beyond question, gave fully of the remarkable talents with which he was gifted, and which he exercised and commanded for the cause in the first instance of the world's largest gas undertaking he for so many years controlled *par excellence*, and in general for the Gas Industry as such. Sir David Milne-Watson was a man of vision who worked unflaggingly, setting an example to his associates and followers. His name is one of eminence and his work lives on. Our Industry, with its long and not unhonourable tradition in the service of the nation and the community, has been blessed by the inspiration of men of stature. Sir David was a man of stature in the human and the industrial sense—an autocrat, if you will, but essentially alive to event, clear of purpose, inspirational, a leader. His life was marked by devotion to purpose of high order; it was a full life, a rounded existence of fruitful endeavour, and we are glad indeed that Sir David was able to see at any rate something of the fulfilment of his hopes and desires of the Gas Industry.

It takes, we suppose, some effort to acquire new theories and new ideas; we feel certain that it takes much more effort to translate new conceptions into valuable everyday practice. Sir David had new ideas, and he coupled with the imaginative faculty that of organization to give imagination forceful and powerful effect. His personality, his shrewd sense of values, his humanity, permeated the Industry for many years and to its lasting benefit. Our record of the work he accomplished is evidence enough of astonishing achievement; behind this record is surely a source of encouragement and very lively hope. Sir David lived, thought, acted big, and our record shows unmistakeably that the outcome of his decisions invariably led to progression. He wanted the Industry to prove itself and have legitimate pride in itself; he wanted the Industry to command attention through unanimity among its counsels, to be able to speak with one voice. It is nearly 30 years since the formation of the National Gas Council, and thought in 1916 attributed the conception of this body to Sir David; for 27 years the N.G.C. Executive had no other chairman—this despite Sir David's opinion, on expressing thanks for his election in 1916, that "these terms of office as President should be only short, not merely so that the honour might go round, but for the sake of getting fresh ideas brought in by new men." He witnessed more consolidated unification in the recently established British Gas Council.

Twenty-five years or so ago Sir David Milne-Watson was instrumental in the infusion in his own Company of a wealth of scientific talent which, while standing the undertaking itself in good stead, had a leavening influence on gas manufacture in Great Britain. That was a bold step marked by both criticism and friction; now the principle is accepted by thinkers if not acted upon universally. The work of the gas manufacturing scientists, technicians, what you will, surged ahead and served as pointer to the need for well-trained men on the gas utilization side. There came the founding of the research and training section bearing Sir David's name—again a boldly planned and executed project beneficial to the entire Gas Industry. So one could go on; the dominant fact is that the work of Sir David Milne-Watson lives to splendid purpose. His belief in and encouragement of education were and remain of immense importance.

§§

As Governor of the Gas Light and Coke Company Sir David saw the undertaking grow from a concern serving a densely populated area of central and north London to one covering a region from Windsor to the North Sea. It is not growing like a tree in bulk that makes man better be. Coupled with the growth of the Company was increased all-round efficiency from coal delivery at the gas-works to the gas-burning appliances in the consumer's houses. Sir David's remarkable capacity was largely instrumental in this two-fold development, the influence of which was not and cannot in its nature be confined to the Gas Light alone.

TEAMWORK RESEARCH

IT is a truism that without research and investigation there can be no forward movement in industry; this broad generalization applies, of course, to the Gas Industry. The war has shown what teamwork research, adequately backed up by money and facilities, can accomplish. We are speaking not of ethical progress and the happiness of mankind, but of the unravelling of nature's secrets and the acquisition of new knowledge of cause and effect. For example, if we take the problem of fog dispersal, in the solution of which the Gas Industry's advice was sought and given, there were scientists who proved mathematically the incredible difficulty of dispersing fog; teamwork research found the answer. On the broad question we were very interested in an article in *The Times* of Thursday last by the Minister in charge of the Petroleum Department of the Ministry of Fuel and Power during the Churchill Government, Mr. Geoffrey Lloyd, who from the foregoing example, among others, drew the conclusion that research and experiment, while they must be directed towards definite objectives, should proceed on a broad front and that policy control should be elastic. He went on to say that with a particularly stubborn problem there is great advantage in getting almost completely separate teams to work from quite different angles. Reverting to the fog dispersal problem, there was a time of impasse; three separate teams in this country and one in America, engaged in friendly competition, found the solution.

The opinion was also expressed in the article to which we refer that at the present time there is danger of our neglecting the engineer in our enthusiasm to praise the scientist. In the field of applied science and development it is an open question whether the scientist with practical experience or the engineer with scientific qualifications contributes the most. What is certain is that the contribution of the engineer is supremely important. It is doubtful whether engineers as a body have received the recognition due to them for their creative work in the war.

As Mr. Geoffrey Lloyd emphasized, there is room and necessity for all sections in the work of research, experiment, and development. "The country," he said, "needs a forward surge over the whole range of creative inquiry and invention for peace purposes. At the summit, the pursuit of knowledge for its own sake must always be supported, encouraged, and honoured. In the realm of applied science and industrial development there is a wonderful harvest of progress and prosperity waiting to be gathered by determined and skilful work. The need was never greater or more urgent than now. Magnificent scientists and engineers are available."

Personal

Presentation to Mr. Ralph Halkett

As recently announced in these columns, Mr. RALPH HALKETT has relinquished the position of General Manager of the Sheffield and District Gas Company, a position which he has filled with distinction since the spring of 1919. A dinner was given in his honour at the Royal Victoria Station Hotel, Sheffield, on Sept. 28, when the chief officials of the Company made presentations to Mr. and Mrs. Halkett as token of their esteem and affection.

Mr. S. T. S. Musgrove, the Distribution Superintendent, presided, and in proposing the toast of Mr. and Mrs. Halkett, referred to the remarkable progress which the Company had made during Mr. Halkett's 26 years' management of the undertaking. He mentioned what he considered were three of Mr. Halkett's most outstanding achievements. The introduction of the profit-sharing scheme had been of great benefit to the whole of the employees. The inauguration and successful operation of the South Yorkshire Gas Grid, by means of which large supplies of cheap gas had been provided for Sheffield and district, had conferred untold benefit on the Company's customers. Thirdly the extension of the Company's supply limits by the acquisition of smaller adjoining undertakings had more than doubled the area of supply. It was fortunate for the Company that Mr. Halkett would remain a member of the Board of Directors, and they would therefore continue to have the benefit of his wide experience.

Mr. H. H. Collett, in seconding the toast, welcomed the appointment of Mr. Halkett, jun., as the new head of the undertaking. Mr. A. Wylie, the Sales and Fittings Superintendent, and Mr. A. Hobson, confidential clerk to Mr. Halkett, also spoke in support of the toast.

Replying, Mr. Halkett said he was proud to know that he was handing over control of the undertaking while it was in a flourishing condition. He had worked hard during the whole of his 51 years' close association with the Gas Industry, but he had enjoyed it all. He expressed his sincere thanks for all the support that had been accorded him, without which he could not have achieved such good results. Mr. Ralph Halkett, jun., also expressed his thanks for the assurances of support which had been given.

* * *

Mr. ALEXANDER FORWARD, Managing Director of the American Gas Association for the past 22 years, retired from active business on Oct. 1, 1945. Mr. Forward is succeeded as Managing Director by Mr. H. Carl Wolf, President of the Atlanta Gas Light Company. He has been a Director of the American Gas Association since 1941.

Mr. Forward began his business career as a newspaper man. During his service the annual budget of the Association has increased from $255,000 to $2,000,000, and it has become the national organization for the development and co-ordination of the American Gas Industry.

* * *

Mr. W. T. DUXBURY, Engineer and Manager of the Atherton U.D.C. Gas and Water Departments, after occupying the position for nearly 34 years, has retired on superannuation. A native of Darwen, he was trained at the Darwen Gas-Works, and later was appointed Works Superintendent at Londonderry. He was appointed Gas and Water Engineer to the Atherton U.D.C. in 1912. Mr. Duxbury has been succeeded by Mr. P. GALLAGHER, who was previously Assistant Engineer and Manager.

* * *

Mr. J. B. WALSH, Distribution Superintendent of the Warrington Gas Department, has been appointed Northern Manager to Messrs. Whittaker Ellis, Ltd., contractors to the Gas Industry, of London and Birmingham. Mr. Walsh received his early training at Altrincham, and was later appointed at Stockport.

* * *

Mr. A. F. H. KNOWLES, General Manager of Kirkham, Hulett, & Chandler, Ltd., has been appointed a Director of Underpressure Engineering Co., Ltd., and will be responsible for the activities of this firm in London and the South of England in the future.

* * *

After 40 years' service Mr. A. SINCLAIR, Chief Clerk in the Greenock Gas Department, has retired. A presentation was made to him by Councillor Brotherstone, Convenor of the Gas Committee.

* * *

Mr. J. HENDERSON, who, for the past 25 years, has been Works and District Foreman of Shotts Gas Company, has been appointed Manager of West Calder Gas Company.

* * *

Mr. J. HOLLINGWORTH has been appointed Foundry Sales Manager of the Staveley Coal and Iron Co., Ltd.

It was found necessary to cancel the arrangements for the autumn meeting of the North of England Gas Managers' Association planned for Oct. 5. The death of Sir David Milne-Watson made it impossible for Mr. A. E. Sylvester, who was to have given an Address, to leave London; and as a token of respect to the memory of Sir David it was decided to cancel the meeting.

Wartime Activities

The story of the wartime activities of the Bryan Donkin Co., Ltd., and British Furnaces, Ltd., Chesterfield, told in a leaflet reprint of an article from the *Derbyshire Times*, is an example of the contribution which the plant manufacturing side of the Gas Industry made to the winning of the war. The former Company turned out heavy gas compressors for armament and aircraft works in all parts of the British Isles and overseas, and helped hard-pressed gas undertakings to maintain pressures when the demand for gas was at its peak. During raids there was a heavy demand for cut-off valves and other equipment, and urgent calls were received from all the main target areas.

The first 2,000 lb. bomb was made at the Chesterfield works, and when Coventry was bombed the Company took over extensive work on aircraft components. After the Sheffield raids steel cylinders containing gas at a pressure of 3,000 lb. per sq.in. were mounted on lorries and sent to works where a supply of gas was vital. One factory ran for 14 days on this emergency service. Churchill tank wheels, torpedoes, trailer fire pumps, gas apparatus for use in the manufacture of penicillin, and petrol distillation plants for the Near East, were among the Company's many other wartime products.

British Furnaces, Ltd., an associate Company of the Bryan Donkin Co., produced furnaces of 50 different types and 400 different sizes. They supplied 150 furnaces for hardening and tempering equipment for 2 lb. and 6 lb. armour-piercing shot, 120 shell nosing furnaces for all sizes of shells, 90 furnaces for heating the copper driving bands of shells, 73 annealing furnaces for cartridge cases, and 14 furnaces for hardening and tempering the ammunition links used in cannon and machine guns on aircraft.

Several of their jobs were highly specialized. For one Royal Ordnance factory alone they put in nine new furnaces and reconstructed about 20 others. They made during the war what was probably the largest furnace in Great Britain. It was made for stress relieving large all-welded vessels such as boilers, drums, &c., and was 50 ft. long and proportionately large in cubic area. Similar furnaces were made for annealing charges of 60 tons of gun barrels.

When air raids temporarily deprived some of the London newspaper offices and some of the Sheffield factories of gas, British Furnaces dealt with rush orders for oil-burning equipment and enabled them to carry on until gas was restored. They also installed heating apparatus for the Ford Motor Co. at their Merlin aero engine works at Manchester and at Dagenham.

The wartime work of both companies was largely an adaptation of their normal production, so that they have no big problem of change over from war to peace.

Diary

Oct. 11.—Midland Junior Gas Association: Opening meeting of Session, 6.30 p.m., Birmingham Gas Department. Presidential Address by K. L. Pearce.

Oct. 12.—London and Southern District Junior Gas Association: Presidential Address of L. W. Andrew; Gas Industry House, 7 p.m.

Oct. 15.—London and Counties Coke Association: Finance Committee, 10.30 a.m.; Executive Committee, 11 a.m.; Central Committee, 12 noon; Annual Luncheon, 1 for 1.15 p.m.; Annual General Meeting, 2.45 p.m., Grosvenor House, Park Lane, W. 1.

Oct. 17.—Institute of Fuel: Royal Geographical Society. Melchett Lecture by Professor C. H. Lander, C.B.E., 6 p.m.

Oct. 19.—National Smoke Abatement Society: Conference on Improved Fuel Burning Appliances for New Houses, 10 a.m., Caxton Hall, Westminster.

Oct. 20.—Manchester Juniors: Demonstration Theatre, Manchester Gas Department, 2.30 p.m. Address by A. F. Oatley, Cannon Iron Foundries, Ltd.

Oct. 25.—Town and Country Planning Association: Lunch-time meeting, 28, King Street, Covent Garden, W.C. 2. Talk and discussion on "Town Planning and District Heating."

Oct. 26.—Manchester District Association of Gas Engineers: Demonstration Theatre, Manchester Gas Department, 2 p.m. Paper by R. J. Bradshaw on "Use of Town Gas in the Glass Industry."

Oct. 29.—Eastern Counties Gas Engineers' and Managers' Association: Autumn Meeting, Grosvenor House, Park Lane, W. 1.

Oct. 31.—London Juniors: Visit to the coke oven plant at the Gas Light and Coke Company's Beckton Works.

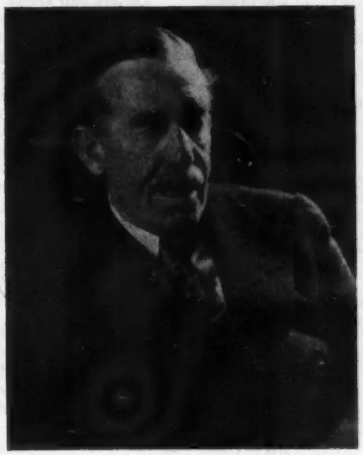
Nov. 2.—London Juniors: Meeting at Gas Industry House. Paper by J. F. Waight, "Applications of 'Neat' Gas in Industry."

Nov. 27–28.—Institution of Gas Engineers: Autumn Research Meeting.

Dec. 6.—Town and Country Planning Association: Lunch-time meeting, 28, King Street, Covent Garden, W.C. 2. Talk and discussion on "Heating the Family Home."

The Offices of the Bureau of Abstracts (Society of Chemical Industry) are now at 9–10, Savile Row, W. 1 (Telephone: Regent 2714–5).

Sir David Milne-Watson, Bart.



The Gas Industry has lost one of its most outstanding leaders of the century by the death on October 3 of Sir David Milne-Watson, Bart., T.D., D.L., LL.D., at his home at Ashbury Chase, Abbotsbury. The fact that he had during the past two years been persuaded to hand over most of his official appointments in the Industry to younger men had in no way diminished the Industry's appreciation of his great leadership. On the contrary, his retirement from one post after another was recognized as further evidence of his desire to see carried on successfully the great work that his failing health was preventing him from doing as effectively as he would have wished.

David Milne-Watson was born in Edinburgh in 1869. His early education was at Merchiston Castle School, Edinburgh. He afterwards studied at the Universities of Edinburgh and Marburg, gained practical legal experience in the office of a renowned firm of Writers to the Signet, and proceeded to Balliol College, Oxford, where he graduated in Arts and Law. At the age of 26 he took up politics and contested South-East Essex. In 1896 he was called by the bar to the Middle Temple before entering industrial life.

He was 28 when he entered the Gas Light and Coke Company as Assistant General Manager, and thereupon he embarked on a career destined to impress his name in the annals of the Gas Industry. He became General Manager of the Company in 1903, and Managing Director in 1916. In 1918, following the retirement of Mr. John Miles from the Governorship, Mr. Milne-Watson was elected Governor of the Company and agreed to continue as Managing Director as well. He retained the two-fold office until October, 1944, when for reasons of health he gave up the Managing Directorship. He had been joined in that post a year or two earlier by Mr. A. E. Sylvester, who, on Sir David's retirement, took over the sole Managing Directorship. Ill-health prevented Sir David from presiding at the annual meeting of the Company last March, and it was not altogether surprising that his retirement from the Governorship was announced at the Court of Directors in the following month. While relinquishing all executive duties, he retained his seat as a Director, and the Court appointed Mr. Sylvester as Governor in his stead, combining, as Sir David had done many years before, the duties of Chairman with those of sole Managing Director. From the inception of the South-Eastern Gas Corporation he was Chairman of that body until last month, when it was announced that Mr. Sylvester had been appointed to succeed him.

With that official brevity which has always characterized its Press communications, the National Gas Council announced in April, 1943, that "the resignation of Sir David Milne-Watson from the Presidency of the National Gas Council and the Chairmanship of the Central Executive Board, due to ill-health, was reported, and it was unanimously resolved that a letter be sent to him on behalf of the Board expressing deep regret at his resignation and thanking him for his many and great services to the Gas Industry during his long term of office."

Behind those few terse lines stood a monumental record of 27 years' service. Founded in 1916 with the aim that the Industry should speak with one voice, the National Gas Council had had no other executive Chairman, nor since its reconstruction immediately after the Great War had it known another President than Sir David. Yet it is recorded that when he was returning thanks for his first election he gave it as his opinion that "these terms of office as President should be only short—not merely so that the honour might go round, but for the sake of getting fresh ideas brought in by new men." However much his colleagues may have agreed with those sentiments, they never swerved from re-electing Sir David until he himself decided that the time had come to make way for a younger man.

During all those years he rendered ungrudging service for the fulfilment of an ideal. A brief biography of the man who guided it successfully through many hardships is not the place to enlarge on the work of the National Gas Council. Suffice it to say that it has succeeded in interpreting many of its founder's ambitions, and has to-day become one of the two great pillars on which the Industry's structure has been established. It was fitting that the announcement of Sir David's retirement should have been followed by a message from New York in which Mr. Clifford Paige wrote: "I know what a tower of strength he has been to his Company and to the Gas Industry of Great Britain. Perhaps you have not realized that over here he is just as highly regarded and has been an inspiration to all of us who know him. We speak of him often in terms of respect and admiration for his accomplishments."

On the employers' side the National Gas Council had in 1919 made provision for the setting up of a separate committee of employers to consider wages and conditions, and before the time was ripe for the formation of the National Joint Industrial Council this committee had become the Federation of Gas Employers, with Sir David as its Chairman, and here again no abler man could be found, and he was re-elected year by year.

Few if any of his many activities in the Gas Industry made a greater call on his time and energy than the work he did for the furtherance of practical understanding between employer and employed, and the comparative freedom from serious differences in the Industry has been in large measure due to his handling of the always delicate and not infrequently difficult problems involved. When the National Joint Industrial Council for the Gas Industry was formed in 1919 with equal representation of employers and the workers' unions, Sir David was appointed Chairman, and the fact that for 25 successive years, until he sought well-earned retirement in September, 1944, he was annually unanimously re-elected by both the employers and the workers, was testimony in itself to the real success with which he filled the office. The function of the Joint Industrial Council, of the setting up of which the Ministry of Labour thoroughly approved, was to secure the largest possible measure of joint action between employers and workpeople for the safeguarding and development of the Industry, for the general improvement of working conditions, and for the attainment of improved output with a view to promoting the best interests of all employers and workers engaged therein. In time eleven regional councils were set up to deal with their own particular problems, within the framework of the national body. When Sir David retired he was deservedly congratulated by the leaders of both sides on all he had done to make it a model council, and it is three months ago that a presentation was made to him by his former colleagues.

Having been largely instrumental in perfecting the organization of so many sections of the Gas Industry, Sir David turned his attention early in the 1930's to the establishment of a unified front, and under his leadership the British Gas Federation was formed in 1934 "to further the interests and welfare of the Gas Industry." The Federation, even if it did not fulfil all of Sir David's most cherished hopes, brought about a closer liaison between the Institution of Gas Engineers, the National Gas Council, the British Commercial Gas Association, the Gas Companies' Protection Association, and the Society of British Gas Industries, than could have been achieved by any other means at that time open to the Industry. Whatever may be its place in the future set-up, it will go down to gas history as the organization which responded in 1943 to the insistent call for a Planning Report. Many of the conclusions reached in the report remain to be implemented, and it may be that the Industry's future will be somewhat different from that visualized when the report was written. While a British Gas Association on the lines indicated in the report remains in abeyance—for the moment at any rate—the British Gas Council has arisen out of the fusion of the National Gas Council and British Commercial Gas Association executives, and many of the ideas and ideals which inspired Sir David's earlier efforts are much nearer fulfilment.

From the inception of the Federation until early in 1944 Sir David was the sole Chairman of the Council, and on his retirement he reiterated an appeal he had made 25 years earlier for united effort.

On the 21st anniversary of the foundation of the National Gas Council and the third anniversary of the birth of the British Gas Federation, the Industry showed its appreciation of Sir David's services by presenting him with his portrait in oils, by Harold Knight, R.A., a selection of silver plate, and an illuminated album containing the names of all the subscribers; at the same time a diamond bracelet was presented to Lady Milne-Watson, the presentations being made by the Earl of Dudley, who was then President of the Federation. The page in the album which indicated Sir David's main activities on behalf of the Industry showed him to be at that time:

Chairman of the Council of the B.G.F.
President of the National Gas Council.
Vice-President of the British Commercial Gas Association.
Vice-President of the Society of British Gas Industries.
Chairman of the Federation of Gas Employers.
Chairman of the National Joint Industrial Council.
Vice-President of the Conjoint Conference of Public Utility Associations.
Chairman of the British Sulphate of Ammonia Federation.
President of the National Benzole Association.
President of the British Road Tar Association.
Vice-President of the Women's Gas Council.

Sir David was actually the founder of several of these organizations, and continued to preside over them for many years. It was very true, as was stated in the preamble to the presentation volume, that although

as Governor of the largest gas undertaking in the world his responsibilities were exceedingly heavy, he did not hesitate to give liberally of his time, knowledge, and experience to the building up and consolidation of the various national organizations representative of the different sections of the Industry. By so doing he enabled the Industry to be welded into a comprehensive Federation. As Governor of the Gas Light and Coke Company he enlisted on behalf of the Industry the support of that great undertaking, and the Industry, at the presentation in 1937, recorded with satisfaction the latest manifestation of its goodwill, which had enabled the national organizations to be worthily and conveniently established in Gas Industry House, occupying one of the finest sites in London.

Always a keen supporter of ordered progress and unity, Sir David was an enthusiastic and staunch advocate of co-partnership, which has been so largely responsible for the industrial peace and good fellowship between employers and employed in the Gas Industry. Co-partnership was inaugurated in the Gas Light and Coke Company in 1909, and Sir David took a keen interest in all the schemes promoted for the welfare of the co-partners. He was a member of the County of London Territorial Army and Air Force Association, and was Hon. Colonel of the "Rangers," the King's Royal Rifle Corps, which was largely recruited from the Company.

Besides his work for the national bodies of the Gas Industry, Sir David was for some time Chairman of the Government Committee dealing with Market Supply, and he served on the Committee on Problems of Rationalization, the old National Fuel and Power Committee, the Gas Legislation Committee, the Advisory Committee of the Board of Trade and the Department of Scientific and Industrial Research, and on the Industrial Court. He was also at one time President of the National Confederation of Employers' Organizations and represented the employers at International Labour Office Conferences at Geneva. He was a member of the Joint Committee set up some years ago to explore "the entire field of industrial reorganization and industrial relations," was President in 1927 of the Association for Education in Industry and Commerce, and of the International Congress on Commercial Education in 1932. He also served on the Malcolm Committee on Education and Industry.

Watson House and the Industrial Gas Centres will serve as perpetual memorials to two of the finest things Sir David did for the Industry. The research, training, and testing station of the Gas Light and Coke Company which bears his name came into being at Battersea in 1926, and was more firmly established in its present premises at Fulham ten years later, and it is no exaggeration to say that no single organization in the Gas Industry in this, or, indeed, any other country has done more within its sphere to promote the progress of gas. The Industrial Gas Centres, championed by Sir David, who recognized the need for action if the Industry was to seize the opportunity for vast expansion in the industrial field, were inaugurated at a conference of the Institution of Gas Engineers, the National Gas Council, and the B.C.G.A. in 1933. Sir David was in the chair, and, as we reported at the time, "conducted the meeting as only a real leader, an enthusiast, a man of vision, could have done . . . and he must have felt more than gratified by the obvious appreciation of his audience and by the result of the meeting—unanimity of agreement with the resolution which he moved."

Greatly interested in education, Sir David Milne-Watson consistently advocated the value of University training for industrial life, and he was a firm supporter of the collaboration in research which was established between the Institution of Gas Engineers and other bodies on the one hand and the Universities on the other. Under his direction every encouragement was given to employees in the Gas Light and Coke Company to follow courses of instruction germane to their particular side of the Company's activities by granting them special facilities for study and by payment of their class fees, &c. There are also various pupilship and apprenticeship schemes, many of which owe their origin directly to his encouragement.

During the 1914–1918 war Sir David was a member of the Ministry of Food Committee on Distribution of Sulphate of Ammonia and the Ministry of Munitions Departmental Committee on the position of the Fertilizer Trades. He was also Chairman of the Hospital Supplies Committee which supplied and equipped two of the largest general hospitals in London.

An honorary member of the Institution of Gas Engineers since 1917, Sir David had been President of the Gas Research Board since its formation. In 1938 he was awarded the Birmingham Gold Medal, the highest honour the Institution of Gas Engineers has in its gift.

Sir David received his degree of LL.D. in 1926 and was knighted in the following January. His baronetcy, conferred in May, 1937, was one of the King George VI Coronation Honours, and came a few months after the opening of Gas Industry House, the Gas Light and Coke Company's gift to the national Gas Industry. In 1896 he married Olga Cicely, daughter of the late Rev. George Herbert, and they had three children.

In a life so crowded with the responsibilities of his own job and the affairs of the Industry he served so well there was little time for leisure, but Sir David had an estate in Dorset, and took much interest in farming and gardening, as well as in shooting. He was also a keen fisherman. He found great pleasure in foreign travel, and had visited most countries in Europe, as well as Egypt and the United States.

Mr. A. E. Sylvester, Governor of the Gas Light and Coke Company, writes: There are many people in the Gas Industry who have known Sir David Milne-Watson longer than I have; but there are very few, if any, who have worked so closely and intimately with him.

Others can speak of the achievements which have studded his long career; I can only speak of the man I have known in the last few years.

He often talked to me of his conception of a great and unified Industry that should play an ever-increasing part in conserving and using to the best advantage the fuel resources of the country—an Industry that should maintain a high prestige in the public view. Shrewd in perception and quick to take advantage of opportunities for furthering his great purpose, he was intensely human and set high value on human relationships.

It is fitting that Sir David's work should be crowned in his lifetime by the establishment of one body, the British Gas Council, to speak for the Industry as a whole. It came as a shock to the new Executive Board that their first meeting should be interrupted by the news of his sudden death, but it brought home to us—as nothing else could have done, and in an unforgettable way—the duty that lies upon us of carrying on the work of the Industry from where he left it. This is the task to which we must all be dedicated.

Mr. Adam M. Millar writes: It is with deep regret that I note the passing of that great figure Sir David Milne-Watson. I had not the pleasure of meeting him until recent years. Knowing his past services to the Gas Industry I would like to pay my mede of praise to the honoured place which he took in the Gas Industry and the commercial life of London.

He received his early education in the city of my birth, being an old boy of George Watson's College and Merchiston Castle, and it gave me great pleasure in the last few years to meet one who had made a place for himself in the Gas Industry and in the commercial life of London.

His genial manner and homely welcome to new members of the Gas Industry will always remain a very pleasant and lasting memory of a great Scots gentleman.

The death has occurred of Mr. H. L. **Pirie,** M.C., M.I.Mech.E., Chief Engineer of the Coal Utilization Joint Council. Mr. Pirie was educated in Aberdeen and served his apprenticeship there as a mechanical engineer. In 1911 he went to America, where he studied at the Purdue University and later joined the Illinois Steel Company. He returned to England early in 1915 to join the Army; he saw much service in France, and was awarded the Military Cross. On leaving the Army in 1919 he joined the staff of Messrs. Stein & Atkinson, Ltd., and later transferred to the Stanton Ironworks Company, Ltd. At this time he initiated the movement from which the Institution of Fuel Economy Engineers originated. He was Hon. Secretary of this body, which was later merged into the Institute of Fuel, of which he became a Joint Hon. Secretary and a Member of the Council. After a period as Chief Engineer to Messrs. Caswell & Shearing, he was appointed as the Chief Combustion Engineer and Adviser to the Amalgamated Anthracite Collieries, where he remained for some four or five years before being appointed Chief Engineer to the Coal Utilization Joint Council. On the outbreak of war in 1939 Mr. Pirie was recalled for active service with the rank of Major, and served in France with the British Expeditionary Force. His health became affected, however, and on his discharge he returned to the Coal Utilization Joint Council in 1940, and was later seconded by them with the Council's complete Technical Department to the then Mines Department, now the Ministry of Fuel and Power. There, he helped to organize a fuel advisory service covering the whole country, which has been of inestimable benefit not only to the Government's fuel efficiency campaign, but to industry in general.

* * *

The death occurred at Stroud on Sept. 23 of Mr. T. H. **Woodcock,** who retired in 1942 from the post of Engineer and Manager of the Stroud Gas Light and Coke Company. Mr. Woodcock, who was 64, received his early training in the Bradford Gas Department, and in 1904 was appointed Assistant Engineer at Stroud. Six years later he succeeded the late Mr. Cutler as Engineer and Manager, and on his retirement he was elected to a seat on the Board. He leaves a widow and one son, Mr. J. Woodcock, who is Assistant Engineer of the Yeovil Gas Company. Another son, David, lost his life early in the war when serving with the Royal Engineers.

* * *

The death has taken place of Mr. James H. **Wilson,** M.B.E., Chairman and Managing Director of George Wilson Gas Meters, Ltd.

The Council of the London Juniors, under the Presidency of Mr. L. W. Andrew, of Watson House, has arranged a programme for the coming Session which marks the return to normal activities on a pre-war scale. An innovation in this victory programme is an all-day Technical Convention on March 23, 1946, at Gas Industry House, preceded by a dinner or dance on the evening of March 22. All meetings will be held at Gas Industry House, the opening meeting and Presidential Address being on Friday next at 7 p.m.

Institution of Gas Engineers

Results of 1945 Examinations

The undermentioned candidates were successful in the 1945 Examinations in Gas Engineering (Manufacture) and Gas Engineering (Supply) of the Institution of Gas Engineers, held under the Education Regulations of the Institution.

EXTERNAL CANDIDATES (53).

Diploma in Gas Engineering (Manufacture) (6).

Class.	Name.	Town.
First	*Beavis, David	Cambridge
Second	Brandram, J. A.	Swettenham
"	Foston, R. H.	Torquay
"	Kenworthy, H. W.	Sheffield
"	Roberts, L. G.	Halifax
"	Robson, F. L.	Stretford

Higher Grade Certificate in Gas Engineering (Manufacture) (19).

Class.	Name.	Town.
First	Fairman, J. R.	Southampton
Second	Armstrong, W. R.	Belfast
"	Attwooll, R. H.	Strood
"	Collins, L. J.	London
"	Dent, T. N.	Bristol
"	Gaston, A. G. A. M.	Portsmouth
"	Hansford, Leonard	Andover
"	Hargreave, J. L.	Berkhamsted
"	Hartley, J. F.	Colwyn Bay
"	Hickin, S. W.	Four Oaks
"	Hornby, N.	Hessle
"	Knowles, R. G.	Stockport
"	Lenthall, A. E.	Retford
"	Painter, F. J.	Edenthorpe
"	Sanders, A. W.	Birmingham
"	Stephen, A. W.	Aberdeen
"	Totty, E. A.	Stoke-on-Trent
"	White, R. E.	Leeds
"	Wood, John	Tenbury Wells

Ordinary Grade Certificate in Gas Engineering (Manufacture) (15).

Class.	Name.	Town.
First	Bain, John	Aberdeen
"	Evans, K. N.	Exmouth
Second	Annable, George	Horley
"	Banyard, C. W.	Lincoln
"	Bates, Jack	Boston
"	Beardshaw, W. E.	Dartmouth
"	Bottomley, Robert	Ilfracombe
"	Cameron, R. W. N.	Bristol
"	Clarke, P. R.	Windlesham
"	Hacon, J. S.	Ely
"	Kershaw, Jack	Darwen
"	Pottenger, R. A. W.	Swindon
"	Stephen, A. W.	Aberdeen
"	Toone, R. P.	Bedford
"	Wakely, R. G.	Bridport

Ordinary Grade (Single Subject) Examination in Gas Engineering (Manufacture) to qualify to sit for the Diploma Examination in Gas Engineering (Supply) (1).

Class.	Name.	Town.
First	Hoskin, John	Southampton

Diploma in Gas Engineering (Supply) (2).

Class.	Name.	Town.
First	Harvey, Frank	Bilston
Second	Halliwell, F. B.	Paisley

Higher Grade Certificate in Gas Engineering (Supply) (2).

Class.	Name.	Town.
First	Collieson, A. F.	Wallasey
Second	Wilson, Raymond	Burnley

Ordinary Grade Certificate in Gas Engineering (Supply) (6).

Class.	Name.	Town.
First	Bain, John	Aberdeen
Second	Bacon, J. F.	Nottingham
"	McIlwraith, Thomas	Shrewsbury
"	Purslow, T. A. E.	Shrewsbury
"	Richardson, H. D.	Rushden
"	Spencer, Jack	Chipping Campden

Ordinary Grade (Single Subject) Examination in Gas Engineering (Supply) to qualify to sit for the Diploma Examination in Gas Engineering (Manufacture) (2)

Class.	Name.	Town.
First	Jarrett, L. W.	Rushden
"	Smith, J. F.	Evesham

* Indicates that the candidate passed with distinction.

INTERNAL CANDIDATES (28).

Higher Grade Certificate in Gas Engineering (Manufacture) (4).

Class.	Name.	Centre.
Second	Hull, M. F.	Leicester
"	Redman, Maurice	Manchester
"	Vigus, K. W.	Birmingham
"	Wickstead, Norman	Birmingham

Ordinary Grade Certificate in Gas Engineering (Manufacture) (17).

Class.	Name.	Centre.
First	Alcorn, John	Glasgow
Second	Barker, G. H.	Huddersfield
"	Bird, J. P.	Birmingham
"	Bovill, F. A.	Newcastle-upon-Tyne
"	Creswell, J. F.	Birmingham
"	Finnigan, J. R.	Bradford
"	Forsyth, William	Glasgow
"	Harcus, John	Edinburgh
"	Harvey, G. W.	Birmingham
"	Haslam, Ernest	Manchester
"	Laycock, Donald	Bradford
"	McKiernan, Daniel	Glasgow
"	Moseley, C. J.	Birmingham
"	Mottershead, J. K.	Manchester
"	Richards, A. W.	Cardiff
"	Rowan, W. G.	Glasgow
"	Wilson, Jeffrey	Manchester

Ordinary Grade Certificate in Gas Engineering (Supply) (6).

Class.	Name.	Centre.
Second	Deans, W. H.	Newcastle-upon-Tyne
"	Harcus, John	Edinburgh
"	Hatch, A. W.	Bristol
"	Heaton, H. L.	Wigan
"	Robertshaw, G. W.	Derby
"	Robinson, H. E.	London

Ordinary Grade (Single Subject) Examination in Gas Engineering (Supply) to qualify to sit for the Diploma Examination in Gas Engineering (Manufacture) (1).

Class.	Name.	Centre.
First	Hayes, C. W. A.	London

REPORT OF THE BOARD OF EXAMINERS ON THE 1945 EXAMINATIONS IN THE MAIN SUBJECT

During the year 1944–45 the members of the Board of Examiners and Assessors, appointed by the Council of the Institution of Gas Engineers, were:

Major Courses.—Examiners: W. K. Tate, M.A. (Chairman) (London); L. W. Andrew, B.A., B.Sc. (London); W. A. Bishop (Croydon); J. E. Davis (London); D. C. Gunn, M.Sc., B.Sc.(Eng.) (Leeds); W. M. Paterson (Brighton); W. N. Smirles, B.Sc. (Birmingham); N. S. Smith (Bristol)—Gas Engineering (Supply). F. Dawson, B.Sc. (London); F. H. Bate, B.Sc. (Birmingham); W. R. Branson, M.Sc. (Cardiff); A. E. Haffner, B.Sc., Ph.D. (London); H. S. Milne, B.Sc.(Eng.) (Aberdeen); E. O. Rose, B.Sc. (London); H. H. Thomas, B.Sc. (Liverpool); P. Wedgwood, B.Sc. (St. Albans)—Gas Engineering (Manufacture).

Assessors: Gas Engineering (Manufacture) and (Supply). West of Scotland: David Fulton (Helensburgh); Sydney Smith (Paisley). East of Scotland: D. D. Melvin (Edinburgh); J. W. Napier, M.B.E. (Dunkeld).

Minor Course and Gasfitting Courses.—Examiners: E. F. Keable (Worksop)—Gas Supply Practice. A. G. R. Kennett (Margate), R. N. Le Fevre (London), J. Robertson (London)—Gasfitting. A Marsden, M.Sc. (Bristol)—Elementary Science.

Examinations, 1945.

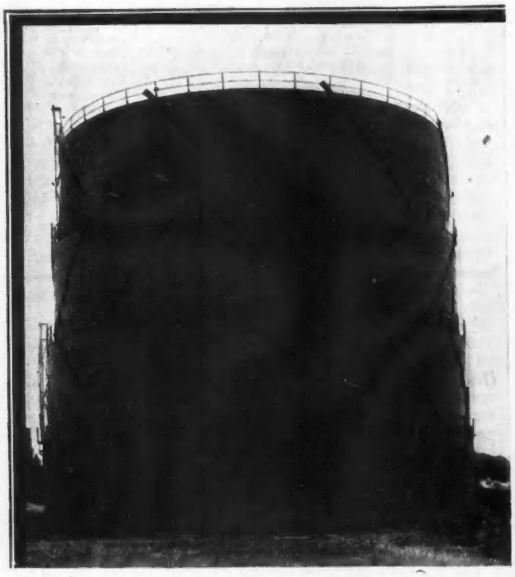
The standard of the examinations was maintained in the case of Gas Engineering (Manufacture), but was lower in all grades of Gas Engineering (Supply), except in the Diploma. Some particularly good answers were submitted for the Home Paper in the Diploma Examinations, although the quality of the answers to the written examination was not so high.

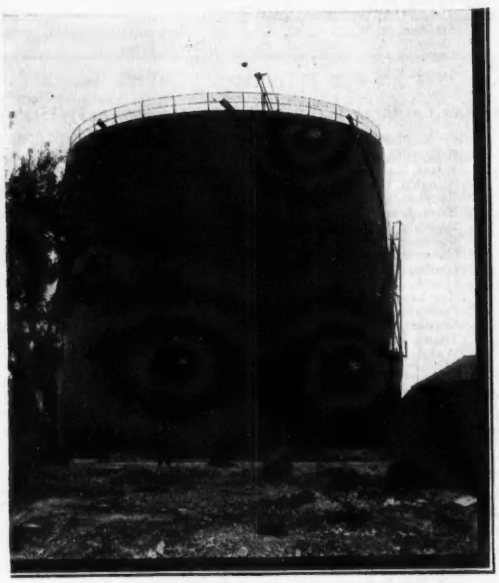
Once again the Board of Examiners feels compelled to comment adversely on the quality of sketching, which, with very few exceptions, is of a low standard. This criticism has recurred so often that the Board of Examiners has given considerable thought to the matter, and in order to assist candidates it is recommended that they should continually practise the art of making free-hand sketches of plant during their daily work. It is not necessary that these sketches shall

ADDITIONAL STORAGE CAPACITY

may *not* necessarily involve additional ground space.

If faced with this problem have you examined the possibilities of increasing your Holder capacity within the original tanks?





These Gasholders, with capacities of 336,217 and 147,100 cu. ft., replace two single-lift Holders of 95,000 and 50,000 cu. ft. respectively. Thus, the total storage capacity of these two units has been more than tripled without additional ground space, and utilising the existing tanks.

Dempster OF ELLAND

ROBERT DEMPSTER & SONS LTD.

Head Office & Works:
ELLAND, YORKS.

London Office: 16 Queen Anne's Gate, Westminster, S.W.1.

show a high standard of draughtsmanship, but they should represent the main features of the plant in correct proportion.

As on previous occasions, there was a reluctance on the part of candidates to attempt questions involving straightforward calculations.

In the Ordinary Grade Examinations there was evidence of a lack of practical experience, and the Board of Examiners hopes that employers will be able to give greater facilities for practical training to students in the post-war years.

The number of candidates entering for the examinations was about the same as last year.

Comparative Schedule of Examination Candidates.

Subject. I.	Grade. II.	1944. Internal. III.	1944. External. IV.	1945. Internal. V.	1945. External. VI.
Gas Engineering (Manufacture)	Ordinary	39	25	36	27
	Higher	19	28	20	26
	Diploma	—	10	—	13
Gas Engineering (Supply)	Ordinary	15	29	16	28
	Higher	5	11	6	7
	Diploma	—	3	—	4
Certificate in Gas Supply		—	—	—	—
Total		78	106	78	105
Grand total		184		183	

Ordinary Grade Gas Engineering (*Manufacture*).

Number of candidates who sat for the Examination:

Class.	Internal—36. No.	Internal—36. %	External—27. No.	External—27. %	Total—63. No.	Total—63. %
1st, with distinction	1	2.8	—	0	1	1.6
1st	3	8.3	8	29.6	11	17.5
2nd	22	61.1	13	48.1	35	55.6
Fail	10	27.8	6	22.3	16	25.3

The number of entrants for the examination was practically the same as last year, and the ratio of internal to external candidates was comparable. The present standard was slightly lower than last year, although there was a smaller percentage of failures, but there was not the marked difference between the standards of the internal and the external candidates. Although a few candidates produced excellent sketches, the standard of sketching on the whole was low, and it was felt that in some cases an elaborate time-absorbing description was used where a simple sketch would have exhibited as much knowledge, and would have been more appropriate.

The answers to the questions indicated that many candidates had not received opportunities of practical experience in routine matters, such as coal sampling and gas analysis, and the Examiners desire to stress the importance of practical training wherever possible.

Higher Grade Gas Engineering (*Manufacture*).

Number of candidates who sat for the Examination:

Class.	Internal—20. No.	Internal—20. %	External—26. No.	External—26. %	Total—46. No.	Total—46. %
1st, with distinction	—	0	—	0	—	0
1st	—	0	2	7.7	2	4.3
2nd	8	40.0	19	73.1	27	58.7
Fail	12	60.0	5	19.2	17	37.0

The number of candidates entering for the examination was the same as last year. There was an increase in the number of passes, but the general standard is still far from satisfactory. Most candidates showed a reasonable knowledge of chemical and process work, but were unfamiliar with engineering principles and practice. In many cases the ability to compose a clear and orderly answer to a question was lacking.

Diploma Grade Gas Engineering (*Manufacture*).

There were 13 entrants for the examination, of whom six took the home paper, and one submitted a thesis which was of an unusually high standard, and dealt with the problem of corrosion on a gas-works in a most comprehensive manner. Of the remaining six candidates, one retook the written examination only, and five submitted the home paper only. In the home paper section by far the most popular question was that dealing with the remodelling of the steam and power system of a reconstructed works, seven answers being submitted, of which one was well within the distinction class, whilst another candidate's work was of first class standard. There were three Second Class Passes and two failures. The question dealing with coke grading, handling and loading plant was answered by three candidates, one obtaining a Distinction and another a First Class Pass, whilst the third candidate failed. Only one candidate attempted the question on the reduction of organic sulphur compounds, but the answer was not to the required standard.

The high standard generally shown in the home paper section was, unfortunately, not maintained in the written examination, except in one notable instance in which the candidate reached First Class Pass in every question. Of the remaining seven candidates, four obtained Second Class Passes and three failed. In general, candidates still seemed shy of attempting questions involving calculations, and many were apt to produce long and rambling answers involving much irrelevant material.

Ordinary Grade Gas Engineering (*Supply*).

Number of candidates who sat for the Examination:

Class.	Internal—16. No.	Internal—16. %	External—28. No.	External—28. %	Total—44. No.	Total—44. %
1st, with distinction	—	0	—	0	—	0
1st	1	6.3	3	10.7	4	9.1
2nd	6	37.5	10	35.7	16	36.4
Fail	9	56.2	15	53.6	24	54.5

Whereas the number of candidates entering for this examination was two more than last year, it is disappointing to the Examiners to find that the percentage of failures was far greater, both in the case of internal and external candidates. It is of interest to note that of the 44 entrants, 21 presented themselves for the Single Subject Examination as a part qualification for entry to the Diploma in Gas Engineering (Manufacture). It is obvious, however, that the candidates preparing for the Diploma Examination have insufficient knowledge of the supply side of the Gas Industry since, of the 21 entries, only 4 reached First Class standard, 7 obtained a Second Class Pass, and 10 failed.

There was a general lack of knowledge of the fundamental principles of using gas, and many candidates were unable to lay out an answer simply and clearly. The Industrial question was attempted by more than half of the candidates, but most of these showed a misunderstanding of the question.

Higher Grade Gas Engineering (*Supply*).

Number of candidates who sat for the Examination:

Class.	Internal—6. No.	Internal—6. %	External—7. No.	External—7. %	Total—13. No.	Total—13. %
1st, with distinction	—	0	—	0	—	0
1st	—	0	1	14.2	1	7.7
2nd	1	16.7	3	42.9	4	30.8
Fail	5	83.3	3	42.9	8	61.5

It is with regret that the Examiners must report a falling away in the standard of answers submitted for this year's Higher Grade Examination in Gas Engineering (Supply), and one of the outstanding features has been the apparent failure of candidates generally to appreciate the implications of the various problems which have been put before them. This may have been due to hasty consideration of the questions before commencing the answers, but the impression is also given that the candidates have failed to understand what they have been taught. There has been a regrettable tendency to use colloquial or even slang expressions to describe technical details, while the sketches, with very few exceptions, have reverted to the low standard to which attention has been called on so many occasions in the past. Sketching is an essential part of an engineer's training, and yet there are many instances where candidates have produced completely incompetent drawings when it was only necessary to add certain items to drawings put before them with the appropriate scales clearly marked.

The reaction to the Industrial questions has been better this year than recently, but still leaves something to be desired in that the theory underlying certain applications of gas to industry is poorly understood. The question on kitchen planning was indifferently answered, which is surprising in view of the great increase that there has been in the installation of such amenities in factories of all kinds during the war period.

It is also felt that attention should be called to the lack of knowledge that exists on the subject of governors. Virtually no candidate appeared to have any fundamental knowledge of the features entering into the design of a district governor, and in view of the essential part played by governors both in distribution and utilization to-day, there is apparently inadequate instruction in this direction.

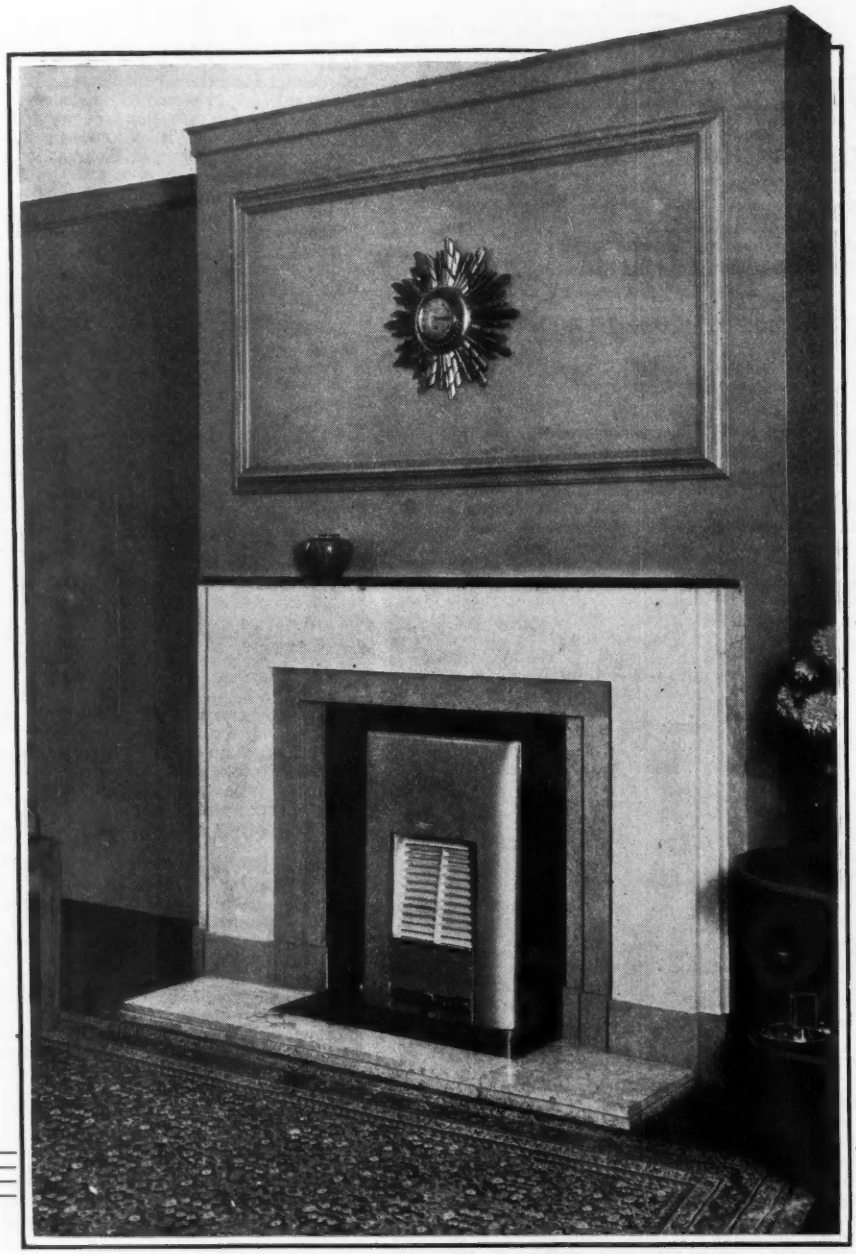
The question on boosters was not very well answered, and it has been notable that although this problem or others similar thereto have been set from time to time during recent years, the standard of answers has always been low.

Theoretical knowledge on utilization as a whole has been rather better, but the majority of the candidates suffer from inability to express themselves clearly and to arrange their facts in a logical sequence.

Diploma Grade Gas Engineering (*Supply*).

Four candidates entered for the written examination, two submitted answers to the home paper and one presented a thesis. The fourth entrant retook the written examination only. The standard shown by the candidates in the written examination is, on the whole, not so high as might have been expected, but it may be said that such theoretical knowledge as was required in the various utilization questions was of a reasonable standard, although the practical application of such knowledge was apparently but indifferently understood.

The industrial questions proved popular, and the standard reached was higher than in recent years. On the other hand, the distribution



A Silent Beam Gas Fire fitted in the Radiation London Showrooms

LEADERSHIP

–the **SILENT BEAM** *Gas Fire with the* **RADO-PANEL** *and* **LUMINOUS FLAMES** *has these notable advantages—*

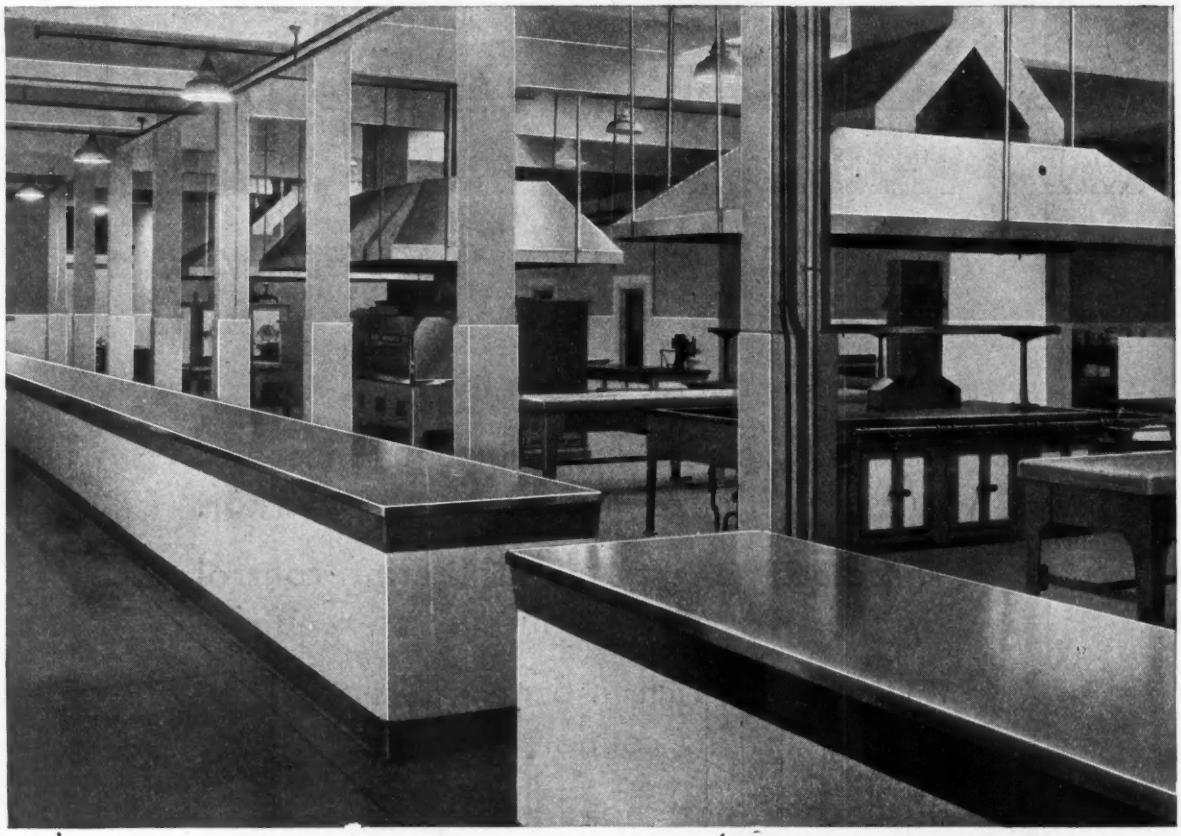
1. Silence in operation.
2. Correct gas rate maintained by means of suitable jet size and pressure governor.
3. Three-position gas tap facilitating control by the user of heat output, as required.
4. Radiant heat, rich in beneficial short infra-red rays, giving comfortable warmth.
5. Burner will not choke nor light back.
6. Negligible maintenance.

Radiation Ltd.

RADIATION HOUSE
ASTON, BIRMINGHAM, 6

LONDON SHOWROOMS:
7 STRATFORD PLACE, W.1

Large-Scale Cooking and Serving of Food



MAIN APPARATUS is designed to stand up to heavy work. It combines reliability with the utmost economy in fuel consumption, and is finished to ensure cleanliness in use.

The complete planning and equipping of Kitchens for Hotels, Canteens, Institutions, etc., can be entrusted to MAIN specialists, whose long experience of catering problems, large and small, is at your service.

PART OF A LARGE CANTEEN KITCHEN INSTALLATION BY MAIN

MAIN

R. & A. MAIN LIMITED
LONDON AND FALKIRK

questions were poorly answered, and some candidates completely failed to appreciate the implications of the first question in Part I of the Examination.

It was also very regrettable to find that candidates had no clear idea as to the desirability of using gas in the interests of national fuel conservation. This is the more surprising in view of the growing importance attached to this subject, and the high place it should occupy in the minds of all concerned with gas undertakings.

Drawing as a whole was again inferior and has proved a handicap to many candidates. Since the candidates now taking this examination would presumably have sat for at least one of the other grades during the war, it would seem that the Examiners' reiterated comments on this particular matter have been wasted.

It is with pleasure that the Examiners can report that the two home papers and the thesis submitted in this year's Examination were all of a good standard.

The two home papers showed every evidence of careful and extensive investigations, but an improvement would have resulted from a more careful checking of the finished works, and a more orderly marshalling and presentation of the subject-matter. It must also be recorded that candidates are somewhat prone to dismiss alternative methods of solving a given problem in a rather hasty fashion, based on a brief survey of the practical sides to a problem rather than on a detailed consideration of each aspect, coupled with a comparison of the relative costs involved.

The thesis, which dealt with the very real and practical problem of the modification and design of an existing distribution system to meet post-war demands, gave a well-balanced account of investigations carried out, and showed many indications of a diligent and persevering application of both theoretical and practical knowledge.

In a footnote it is stated that it may be necessary to alter certain expressions in the report, as two answer books have since been received from candidates serving overseas, and a third has still to come from a candidate in the British West Indies. The percentages and figures quoted will require amendment after the answer books have been assessed. The results of the Examinations in Gas Supply Practice and Gas Fitting are not complete, and the Examiners' reports are not available.

Wartime Development at Airdrie*

By DAVID L. DICKSON,

Gas Engineer, Airdrie

(*Continued from p. 471*)

(3) The Holmes rotary washer was completely dismantled and overhauled, a new shaft and new brushes being fitted, the driving unit being sent to Messrs. W. C. Holmes & Co. for complete overhaul.

(4) Purifiers—a complete set of rubber lutes was provided and fixed, and all the covers were thoroughly examined and patched. At this stage we patched by means of plating secured by bolts and nuts; later on we welded all patches and found this to be much stronger, neater and more economical. The weck valve was completely overhauled, and false seats were inserted to make this unit tight.

(5) A new (65,000 cu.ft./hour) Connersville meter was installed, replacing an old 30,000 cu.ft. wet meter, the drum of which had perished. Surprisingly the old meter had operated for years entirely in the open without being covered or protected in any way.

(6) No. 2 and No. 3 gasholders were thoroughly overhauled, new spindles being inserted and guide wheels adjusted. At the same time the opportunity was taken to tap all oiling holes, and later when they became available to insert pressure grease nipples. Brick retaining walls were also built part way round the tank coping, which was at ground level. The idea behind this was to throw all dirt and rainwater away from the tanks. In the past this had run into the tank, carrying with it ashes and road material, &c., in consequence of which banks of silt had formed in each tank, damaging the side sheets of our main No. 3 gasholder to such an extent that it was unwise to uncup this holder:

(i) Because of the bank of silt and the possibility of further damage, and—

(ii) because once uncupped, the bulges were so great that if the top lift sunk low enough it would either jam or the sides would be cut open by the internal bent stays.

In the case of the smaller holder (a single lift) the need for attention was not so pressing, since the danger could be overcome by using it up to two-thirds its capacity. Ultimately we managed to clear all this silt deposit with both holders working. This we did by means of a petrol-driven sludge pump, the pump drawing at the sludge and water (which we kept agitated) from the bottom of the holder and passing this over a series of settling bays, the clean water thus draining back to the holder tank and the mud being deposited. The removal of the bulges was another proposition, and for this the makers were called in. This repair was carried out with the holder working, hand-holes being cut near the bent vertical stays and cleeks inserted to catch those stays. By means of blocks and tackles a pull was exerted and the stays gradually straightened. By gradual and systematic pulling the bulges were considerably reduced to such an extent that it was feasible to uncup the holder without the danger of jamming.

(7) A three ton motor lorry was purchased.

1942–1943.

(1) A second-hand Cochran boiler was installed complete to act as standby to the Lancashire boiler.

(2) The old horizontal chimney stack was removed, also an old water tube boiler, the boiler house annexed to retort house dismantled and the gable end of the retort house lined off and filled in with asbestos sheeting.

* Paper to the North British Association of Gas Managers, Sept. 7.

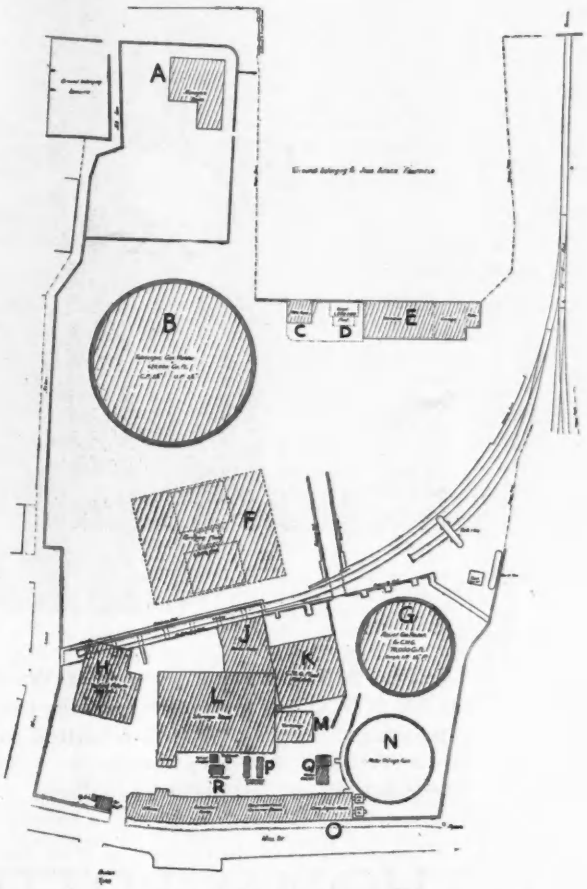
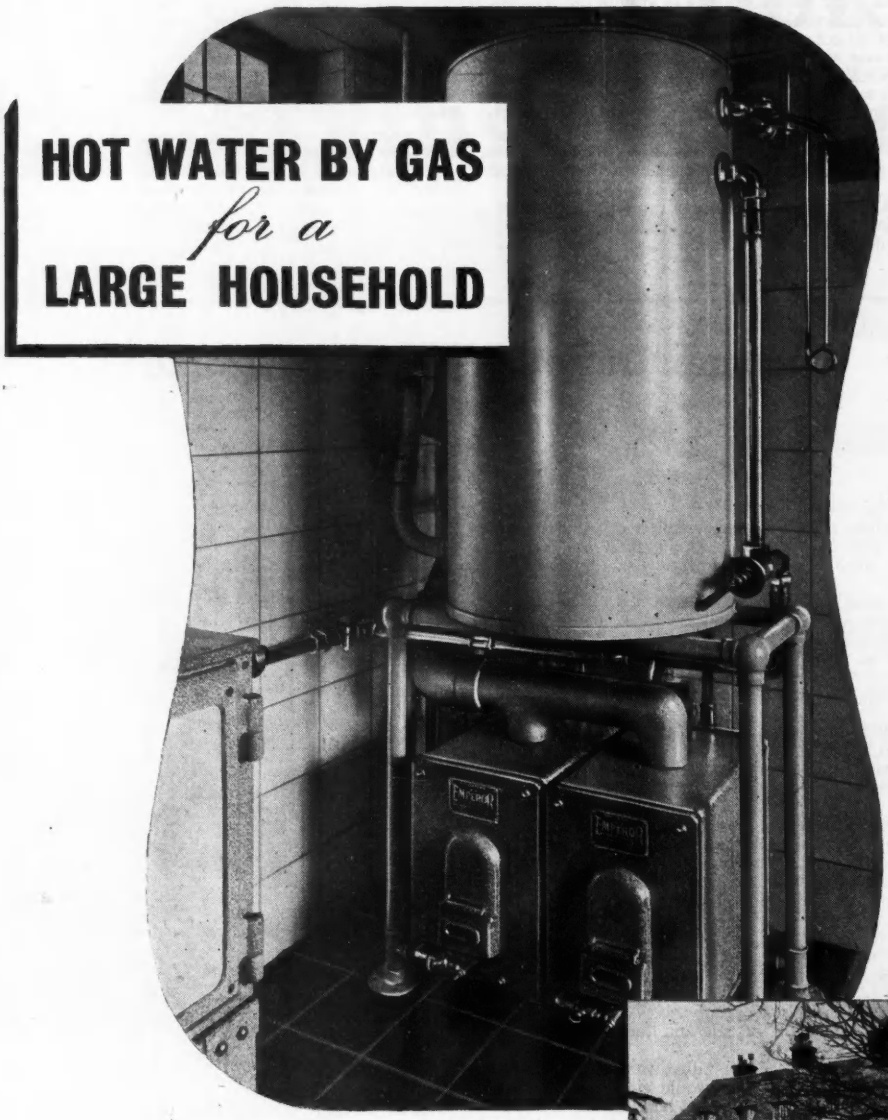
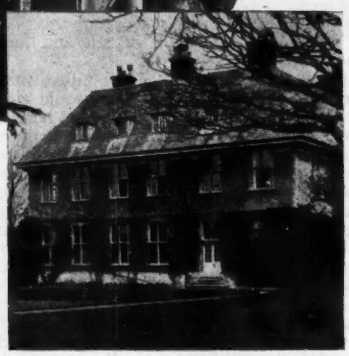


FIG. 2.—*Burgh of Airdrie Gas-Works. Present layout.*

A. Manager's House.
B. Telescopic Gasholder, 670,000 cu.ft. G.P. 5¾ in. U.P. 3¾ in.
C. Meter House.
D. Benzole Plant, 1,500,000 cu.ft.
E. Workshop; Garage; Shelter.
F. Purifying Plant, 1,250,000 cu.ft.
G. Relief Gasholder for C.W.G., 70,000 cu.ft. Single lift, 3¾ in. P.
H. Vertical Retorts, 800,000 cu.ft.
J. Boiler House.
K. Carburetted Water Gas Plant, 500,000 cu.ft.
L. Storage Shed.
M. Workshop.
N. Water Storage Tank.
O. Offices; Exhauster House; Compressor and Governor House; Concentrated Liquor House.
P. Condensers, 1,000,000 cu.ft.
Q. Washer, 500,000 cu.ft.
R. Vertical Scrubber; Tar Extractor; Pump House.

HOT WATER BY GAS *for a* LARGE HOUSEHOLD





Two POTTERTON No. 2 Emperor Gas Water Heaters (40,000 B.Th.U. per hour each) provide the hot water supply for this house. You are invited to make use of our Technical Advisory Service for assistance with any selection and installation problems.

THOMAS POTTERTON {HEATING ENGINEERS} LTD.

CAVENDISH WORKS, BUCKHOLD RD., LONDON, S.W.18. *TEL*: PUTNEY 2263-4-5

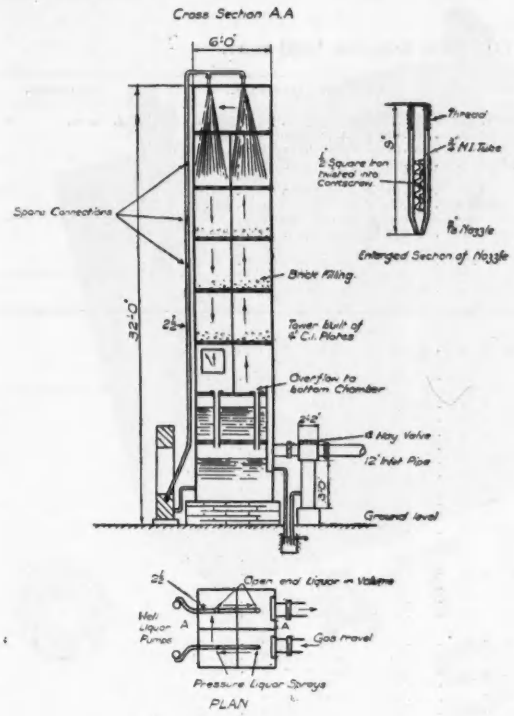


FIG. 3.

(3) A meter house and garage were also built. This work was all done at the time the foundations for the benzole plant were being installed.

(4) The old sulphate of ammonia plant was dismantled, and utilizing the still and the old wet meter as a concentrated liquor tank, a concentrated liquor plant was built. (Part of this was paid in 1943–1944.)

(5) Two retaining walls were built and much needed yard space reclaimed. Also works boundary wall built and carried high enough to serve as a wall for meter house, garage and benzole plant. This arrangement is shown in fig. 4.

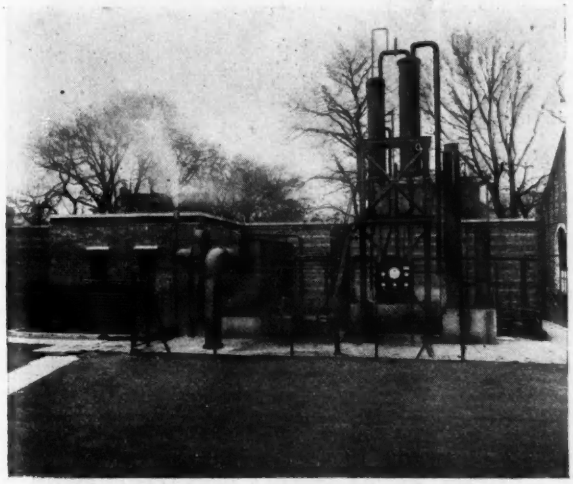


FIG. 4.—*Showing Benzole Plant, Boundary Wall, and Meter House.*

1943–1944.

(1) An engineering shop was laid down and equipped with the following machinery:

Electric motor and line shaft.
Belt driven screwing machine.
Belt driven buff.
Motor driven vertical.
Motor driven lathe.
Motor driven hack saw.
Portable power driven drilling machine.
Gas fired tool furnace suitable for brazing and welding.
All necessary oxy-acetylene and oxy-coal gas equipment for welding and cutting.

(2) A Muirhill mechanical shovel.
(3) A Coleman oxide breaker, motor driven.
(4) Live and exhaust steam pipe ducts with concrete covers laid throughout works.
(5) Purifier sheds refloored with concrete.
(6) Roadway and part of top yard relevelled, drained and covered with tar macadam.
(7) Bunker and conveyor installed for water gas plant.
(8) A 10-h.p. motor survey van was also purchased.

1944–1945.

(1) A new coke screening unit complete with platform, pump, breeze bunker and chute was also installed replacing existing static screen.
(2) The old water gas plant built in 1920 was completely renovated and made fully automatic.

In most cases these were charged against maintenance of works, which you will observe from analysis of cost sheet (fig. 5) has been much higher than normal during the past three years.

Benzole Plant

Over and above this we also installed in 1942–43 a 1½ million cu.ft. per day benzole plant of the wash oil type. This, being an entirely new and additional unit, was made a capital charge. We made provision to have it so placed that it could easily be converted to a dri-gas plant if benzole proved uneconomic. We have had only about nine months' full working out of this unit owing primarily to the scarcity of coal, and secondly to the fact that our carbonizing plant was being pushed to the maximum of its output. It has not therefore in our case been an economic proposition.

This plant when working caused no trouble whatsoever, and it was a simple matter to check every 24 hours by office records exactly how it was operating. At its installation, in order to assist technical control, we insisted on the plant being provided with—

Arca temperature control equipment.
Steam meter measuring all steam to plant.
Oil meter measuring quantity of oil in circulation.
Water meter measuring all water in circulation, except that used for arca control.
Main steam pressure gauge, non-recording, but set at 60 lb. by means of reducing valve placed at main steam inlet, and controlling all plant.
Duplex temperature recorder for temperature of vapour leaving dephlegmator and temperature of oil leaving cooler.
Distance type of thermometer for oil leaving heater.
Distance and duplex recording thermometers have mercury sheath thermometers inserted at source for verification.
Thermometers in benzole and oil outlet pipes.
Thermometers in gas inlet and outlet pipes.
Differential pressure gauge on gas scrubber.
A Sigma recording unit for the official gas referee test complete with cabinet, and a gas meter with cut-off for sulphur testing was also supplied.

By this means it is a simple, quick way of transferring all necessary data to office sheets, and determining immediately what results had been obtained over the previous 24 hours.

Of the above outlined new work presently completed there are two items which are worthy of more detailed consideration:

(1) Coke screening unit, and
(2) Conversion of water gas plant.

Coke Screening

With the adoption of verticals and our greatly increased output we found that the coke for sale had jumped tremendously. We had, however, a ready market available and no immediate difficulty in disposing of it. We realized that such might not always be the case, and that it was up to us to endeavour to improve the quality of our product to the utmost, especially since we were at the mercy of the mines with regard to quality of coal, and therefore ash content of the coke. This, however, did not relieve us of the duty of good screening and sizing, also maintaining a fairly constant moisture content. We had always been dissatisfied with our static coke screening facilities, which provided only a very limited means of screening, as well as reducing our bunker storage capacity by approximately 40% owing to the fact that the bunkers were fed at one point, so filling the bunkers only up to the angle of repose. Not only so, the coke coming direct from the retorts could be quite hot at times owing to various circumstances, and we had to resort to quenching the coke as it was being conveyed to the bunkers. This, as well as being extremely dirty, was detrimental to the conveying plant.

FIG. 5.

ANALYSIS OF COSTS OF MANUFACTURED GAS ON GAS SOLD BASIS PER 1,000 CU.FT.

	1938–1939.	1941–1942.	1942–1943.	1943–1944.	1944–1945.
INCOME.	£ s. d. . D.	£ s. d. . D.	£ s. d. . D.	£ s. d. . D.	£ s. d. D.
Gas sold	28,135 18 7 . 52.59	43,265 6 7 . 52.36	43,787 14 6 . 49.61	42,213 10 11 . 42.25	
Hires	4 8 0 . .01	5 15 10 . 0.50	7 6 2 . 0.01	6 1 2 . 0.01	
Income from Gas Fittings	27 13 9 . .05	416 12 10 . 0.01	970 12 5 . 1.09	1,075 15 0 . 1.08	
Hire Purchase Instalments					
Less Depreciation			5 4 0 . 0.01	15 5 4 . 0.02	
Profit on Coke Oven Supply			3 11 3 . 0.00	344 8 10 . 0.34	
	28,168 0 4 . 52.65	43,687 15 3 . 52.87	44,774 8 4 . 50.72	43,655 1 3 . 43.70	
+Loss					
—Profit on Year's Working	1,905 9 3 . 3.56	8,166 19 9 . 9.88	6,220 16 10 . 7.05	415 11 0 . 0.42	
	30,073 9 7 . 56.21	35,520 15 6 . 42.99	38,553 11 6 . 43.67	43,239 10 3 . 43.28	
EXPENDITURE.					
Manufacturing Charges:					
Coal and Fuel used on Works	9,104 16 2 . 17.01	17,565 1 2 . 21.25	18,551 6 2 . 21.01	24,931 9 5 . 24.96	
Less Residuals (Coke, Tar, &c.)	2,973 13 3 . 5.65	9,338 0 8 . 11.30	10,212 17 10 . 11.57	17,252 11 8 . 17.27	
Nett Cost of Coal	6,131 2 11 . 11.46	8,227 0 6 . 9.95	8,338 8 4 . 9.44	7,678 17 9 . 7.69	
Boiler Fuel	361 19 2 . 0.68	285 0 0 . 0.34	180 0 0 . 0.20	521 6 1 . 0.52	
Oil for C.W.G. less Subsidy		34 7 11 . 0.04	9 17 11 . 0.01	193 0 4 . 0.19	
Purification	81 8 8 . 0.15	472 3 6 . 0.57	712 12 6 . 0.80	77 13 11 . 0.08	
Salaries	740 0 0 . 1.38	631 5 0 . 0.76	676 5 0 . 0.76	738 4 11 . 0.74	
Carbonizing	3,246 5 5 . 6.07	1,798 7 7 . 2.18	1,899 1 3 . 2.14	2,266 8 8 . 2.27	
Maintenance of Works	1,347 8 1 . 2.52	5,657 1 8 . 6.85	7,116 2 0 . 8.07	8,569 7 4 . 8.58	
Cartage of Refuse	129 6 5 . 0.24	202 14 7 . 0.25	59 10 7 . 0.07	88 14 10 . 0.09	
Distribution of Gas:					
Wages of Inspectors	788 16 3 . 1.47	915 11 7 . 1.11	990 10 5 . 1.12	1,015 18 6 . 1.02	
Survey Van—Cost and Upkeep				200 13 5 . 0.20	
Repairing Meters	805 5 8 . 1.50	800 8 1 . 0.97	521 19 9 . 0.59	386 0 7 . 0.38	
Repairing Stoves	480 7 1 . 0.91	744 16 1 . 0.90	503 13 8 . 0.57	437 0 5 . 0.44	
Repairing Mains, &c.	1,408 12 3 . 2.63	2,442 16 1 . 2.96	1,450 10 0 . 1.64	1,976 19 5 . 1.98	
Gas Fittings		370 2 7 . 0.44	981 15 2 . 1.11	1,154 18 10 . 1.16	
Management Charges:					
War Damage Insurance		1,000 0 0 . 1.21	1,000 0 0 . 1.13	1,000 0 0 . 1.01	
Feuduty, Rates, &c.	4,046 0 4 . 7.56	3,037 0 0 . 3.67	3,220 5 0 . 3.65	4,550 19 3 . 4.55	
Income Tax	1,622 14 10 . 3.03	1,184 1 9 . 1.44	3,018 14 9 . 3.43	4,500 0 0 . 4.50	
National Insurance	189 8 0 . 0.35	169 3 0 . 0.21	161 0 8 . 0.18	169 0 6 . 0.17	
Sickness Allowance	134 5 11 . 0.25	179 6 9 . 0.21	128 7 3 . 0.15	183 9 9 . 0.18	
General Administration	429 0 10 . 0.80	442 3 11 . 0.54	494 6 0 . 0.56	474 13 2 . 0.48	
Superannuation	506 9 7 . 0.95	538 6 1 . 0.65	554 15 3 . 0.63	519 18 11 . 0.52	
Miscellaneous	319 10 5 . 0.60	802 1 4 . 0.98	915 5 0 . 1.04	842 0 5 . 0.84	
Bad Debts, Allowances	36 4 8 . 0.07	*182 4 0 . 0.22	2 12 8 . 0.00	9 15 1 . 0.01	
Statutory Charges:					
Depreciation Fund	1,116 0 0 . 2.09	1,246 0 0 . 1.51	1,409 0 0 . 1.60	1,412 0 0 . 1.41	
Reserve Fund	650 10 0 . 1.22	996 17 6 . 1.20	1,089 8 4 . 1.24	1,243 18 2 . 1.24	
Standing Charges:					
Sinking Fund	4,833 8 6 . 9.03	1,850 0 0 . 2.24	1,850 0 0 . 2.10	1,850 0 0 . 1.85	
Interest	669 4 7 . 1.25	1,311 6 0 . 1.59	1,269 10 0 . 1.44	1,178 10 0 . 1.18	
	30,073 9 7 . 56.21	35,520 15 6 . 42.99	38,553 11 6 . 43.67	43,239 10 3 . 43.28	
GENERAL STATISTICS (425 *B.Th.U. Gas*).					
Coal used per annum	7,766 tons	10,297 tons	11,528 tons	12,644 tons	12,328 tons
Average price per ton	23s. 1.8d.	29s. 1.24d.	31s. 7.67d.	33s. 8.2d.	39s. 6.05d.
Gas made per annum	136,445,000 cu.ft.	212,193,000 cu.ft.	224,644,000 cu.ft.	253,242,000 cu.ft.	273,409,000 cu.ft.
Gas made per ton	17,570 cu.ft.	20,607 cu.ft.	19,487 cu.ft.	20,028 cu.ft.	22,177 cu.ft.
Percentage Unaccounted for Gas	4.79	6.54	5.06	4.72	Not known yet.
Residuals per ton of Coal Carbonized:					
Saleable Coke, cwt.	4.37	7.08	7.16	7.47	6.32
„ Breeze, cwt.	—	1.97	1.63	1.50	1.33
„ Tar, gall.	10.70	12.00	17.07	17.70	16.36
„ Benzole, gall.	—	—	—	1.29	0.11

* Balance of purchase of Motor Lorry.

It was therefore decided to install a mechanical screening unit, which incorporated as many as possible of the following points:

(1) The utmost efficiency in screening.
(2) Silence in action.
(3) Conveyor as well as screening unit.
(4) Easy accessibility for repairs and maintenance.
(5) Low running cost.
(6) Of a robust simple construction, capable of a long working life.

We finally decided on a Cort improved balanced type reciprocating screening conveyor of 25 tons per hour capacity, driven by a 3 h.p. "Lancashire Dynamo" squirrel cage pipe ventilated electric motor with tex rope drive and fitted with weld mesh panel and square mesh plates for screening to the following sizes: 0/¼ in., ¼/½ in., ½/1¼ in., 1¼ in. and over.

This screen is fitted with roller bearings and reciprocating arms oscillating on pins in rubber bushes. The chutes at all wearing parts are lined with renewable cast iron plates, and the fall of the coke from the conveyor to the screen is broken and so directed as to give a gentle even feed to the screen. At the same time we built an outside bunker of 10 tons capacity and led the 0/¼ in. screenings to it by means of a concrete pipe chute. The screen is so controlled that it can be started or stopped either at screen or ground level.

This unit has been in use since February, 1945, and has proved a great success. In the short period of five months it has dealt with 2,860 tons of coke, which it has screened as follows:

Size	0/¼ in.	¼/½ in.	½/1¼ in.	1¼ in. and over
	8%	10.7%	20.9%	60.4%

We have every reason to be pleased with our choice. It has proved:

(1) That it does effectively screen and grade.

(2) That it is silent in action, so much so that when it is working at the same time as the conveyors, the screen is not heard at ground level, and a warning light has had to be installed to indicate when the unit is in operation. A silent screen was very necessary owing to our proximity to the town, and up to the present we have not had a single complaint.

(3) It has given us both conveying and screen action and consequently increased our bunker storage capacity.

(4) It is most accessible for repairs. Each screen panel can be removed without disturbing the whole length. The method of retaining the mesh in position is simple and effective, and so far all the maintenance necessary has been to blow the motor free from dust, which we do every month.

(5) With regard to running costs, owing to the various new units recently installed we have been unable to determine the actual running costs, but so far our weekly power check has shown no appreciable increase, and hence we feel no sense of alarm on this score.

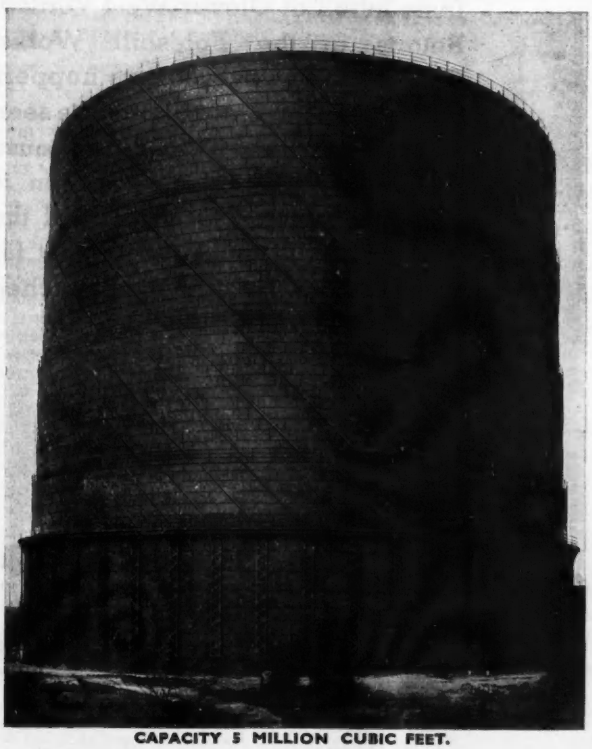
(6) The very simplicity of this unit and its robust construction coupled with ease of lubrication gives every indication of long life.

(To be concluded)

SAWER & PURVES
METERS
HAVE BEEN
GIVING
NATIONAL
SERVICE
SINCE 1869

NELSON METER WORKS
MANCHESTER 10
TELE COLlyhurst 2289
SAWER MANCHESTER

also at
NOTTINGHAM
Telephone : 75202
WATFORD
Telephone: 2645



CAPACITY 5 MILLION CUBIC FEET.

C. & W. WALKER
LIMITED.
DONNINGTON,
Nr. WELLINGTON—SHROPSHIRE
'Phone : Wellington-Shropshire 12
'Grams : "Fortress," Donnington, Shropshire.

SPIRAL
GASHOLDERS

DESIGN by Specialists.
MATERIALS of Best Quality.
CONSTRUCTION in our own Works, by Trained Workmen, Under Efficient Erectors.
ERECTION by Experienced Erectors.
Riveted or electrically welded.

LONDON OFFICE—Temporary Address : DONNINGTON, WELLINGTON, SHROPSHIRE.

GLOVER-WEST *Vertical Retorts at* COVENTRY

"It is no longer considered necessary that the buildings housing Gas Works plant should be of a purely utilitarian character. For comparatively little extra expenditure it is possible for these buildings to be of such a character as to maintain and even raise the prestige of the Gas Industry in the eyes of the consumer and of the public as a whole."

COMMUNICATION No. 230—PROCEEDINGS OF THE INSTITUTION OF GAS ENGINEERS, 1939-40.

In this photograph of the fourth Installation of Glover-West Vertical Retorts at the Foleshill Works, Coventry, the coke storage hoppers with screening plant above are seen in the foreground. The retort house lies to the left. Space between is reserved for the duplication of the carbonizing plant. The project for the complete installation is sketched below.

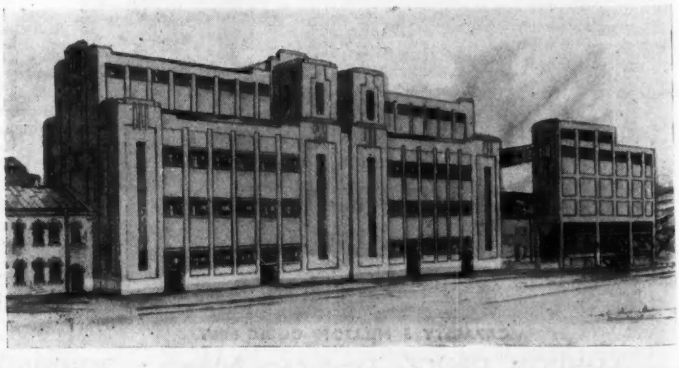
West's Gas Improvement Co., Ltd.

Miles Platting, MANCHESTER 10

Telephone: Collyhurst 2961-2-3-4-5.
Telegrams: Stoker, Manchester.

London Office:
COLUMBIA HOUSE, ALDWYCH, W.C.2.

Telephone: Holborn 4108-9.
Telegrams: WESGASCO, ESTRAND.



COMPANY MEETING

Gas Consolidation, Ltd.

The Eleventh Annual General Meeting of Gas Consolidation, Ltd., was held on Oct. 2 at 15, Moorgate, London, E.C.

Major JULIAN DAY, M.C., the Chairman, who presided, said: The accounts for the past financial year which terminated on May 31 last show no substantial variation from those of preceding years. In the balance-sheet there are only minor changes, to which I need not draw particular attention. In the revenue account dividends and interest on investments (gross) at £45,350 show an increase of £3,191 over the preceding year and the credit balance on interest account shows a slight increase. Thus the balance carried to appropriation account is £22,231, compared with £20,840 for the previous year.

The Directors recommend the payment of dividends on the A and B Ordinary stock at the same rates as have been paid since 1940—namely, final dividends of 2½% and 3% actual, less tax respectively, making with the interim dividend already paid a dividend of 5% less tax on both classes of stock. As shown in the Directors' report, after providing for these recommended dividends, the balance brought forward is £19,077, compared with £14,849 brought in at the beginning of the year.

Stability of Parent Company's Accounts.

There has, of course, been considerable variation in the results of the individual operating companies comprising the group, but these variations are not reflected in the accounts of the parent Company, which have shown consistent stability, with an improving tendency over the whole period of the war. A large body of our shareholders is composed of those who accepted offers made to exchange their holdings in the various operating undertakings for shares or stock in this Company, and by so doing they have secured for themselves a stability of income which might not have been obtainable from their previous investment in a single undertaking.

In common with other undertakings throughout the country, operating companies have had varying experiences due to the re-allocation of industry, movement of population, and other factors directly attributable to war conditions. As I pointed out last year, the increase in output of the group as a whole compared with the pre-war output has been very substantial, sales of gas for the year 1944 having risen to 2,113,000,000 cu.ft. as compared with 1,337,000,000 cu.ft. for the same companies at the date of acquisition—an increase of some 60%. This has been due to the relatively favourable geographical position of the group, and also to the large increase in demand for gas for industrial purposes which the undertakings have been called upon to supply. Abnormal increases of this character are by no means always profitable, but if the increased output can be maintained at or near the war level I need hardly point out that the value of our original investments will be very substantially enhanced.

Improving Service to Consumers.

The primary aim of the Company, however, is to make available through its subsidiaries a constantly improving service to all consumers of gas in its area, and to be able to expand that service quickly to meet any increase in demand which may arise. Although I have previously, on more than one occasion, stated that it was our conviction that this aim could be best and most efficiently accomplished by eliminating the smaller and uneconomic units of production and providing supplies of gas through regional grids, I think that this view cannot be too strongly emphasized. Unfortunately the exigencies of war conditions have severely limited attempted application of this policy, and to-day, apart from the difficulties still arising from shortage of labour and of the essential materials required for mainlaying, there is the further obstacle of being unable to obtain the required authority to proceed, or indeed any indication of Governmental policy with regard to such progress towards integration.

These conditions have now obtained for some six years, more than half the life of this Company, and although we must recognize the need for patience, the long continuance of rigid control accompanied by the lack of any guidance as to the broad lines of future policy towards the Industry produces a state of almost complete frustration.

Heavy Programme of Improvements.

In the near future the operating companies must face a very heavy programme of improvement of mains and services throughout the entire area and for the carrying out of repairs which it has been necessary to defer. The persistent demand for gas has been so great that in a number of instances it has not been possible to close down part of the plant for periodical routine repairs, which are normally carried out in the summer time when gas is in less demand. It will also be necessary to provide and distribute an exceptionally large quantity of appliances both for domestic use and to meet the continuing requirements of gas for industrial purposes. I fear that we must reconcile ourselves to considerable delay in supplying demands of this character which have been pent up for so long.

One factor calling for the use of gas for additional purposes compared with the pre-war period arises from the considerable saving in labour costs involved in using gas compared with solid fuels. This is intensified by the fact that the cost of gas to the consumer has not increased proportionately to competing fuels.

In the future operation of the Industry the extraction of the by-products of carbonization must assume even greater importance as a factor in maintaining a low cost of gas. Special attention has been given to this by the technical staffs of this Company and of the Severn Valley Gas Corporation, and in spite of prevailing conditions research has been continued actively. The inability to purchase the correct coals for carbonization at the various plants to conform with the type of retorts employed, even when these appear to be available, is a serious stumbling-block in the path of further progress along these lines.

Whatever the nature of the future control of the coal-mining industry and the Gas Industry may be, common sense demands that the use of coals suitable to each unit of production must be permitted when these are available. It is difficult to make consumers or the public in general aware of the handicap imposed on the industry through the arbitrary imposition of such restrictions.

In conclusion I must again express the appreciation of the Directors of the exceptional services rendered by officials, staff, and employees throughout the group. Such services have made possible the war record of the parent Company and the operating undertakings, which must stand out as a source of satisfaction to all concerned.

The report and accounts were adopted.

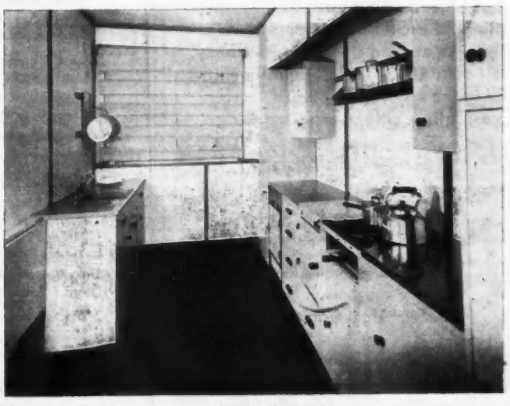
Temperature Control in Industry

A comprehensive catalogue describing the Multilec pyrometer as used for the measurement and automatic control of temperatures just issued (No. 897) by George Kent, Ltd., Luton, gives a brief history of the development of temperature control in industry and details of the present-day instruments. In 1929, the 91st year of the firm, the first Kent potentiometric temperature controller was produced, after much research work in the laboratory and in industry. The instrument had a vertical slide wire spindle and a case glazed on three sides as well as the door. The following year saw the introduction of a more robust instrument, then known as the Mark II temperature controller. Many of these instruments were supplied to oil refineries, and in that exacting service much valuable experience was gained. In 1935 the Multilex was produced and supplied as a potentiometer or Wheatstone bridge instrument for temperature recording and control up to 3,000° F. A large number of these instruments were supplied for temperature, and with suitable primary elements, for pH conductivity and CO_2, until 1939, when the instrument was superseded by the Multilec Mark II, in which greater accessibility was achieved and a longer length of chart exposed to view. The use of bold scales for indicating and control setting was also an improvement. The range of Mark II instruments now extends to cover single and multipoint recording, many types of automatic control, radiation pyrometers, and manually selective multipoint indicators. During the war years 3,800 Multilec instruments were supplied for war plants.

Sheffield Civic Planning Exhibition

A modern gas kitchen equipped by the Sheffield and District Gas Company was shown at the Sheffield Civic Planning Exhibition which ran for some six weeks and was visited by over 90,000 people.

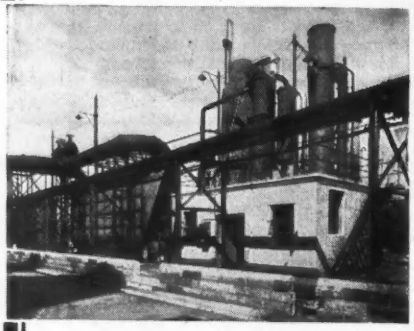
The kitchen shown was similar in plan to one kitchen in a pair of experimental houses being erected by the Sheffield City Council, and is of the working kitchen type with adjoining utility room. The Sheffield



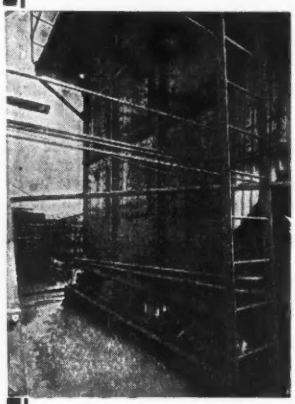
and District Gas Company equipped this with modern unit kitchen equipment with built-in gas appliances, which included horizontal gas cooker, refrigerator, built-in wash boiler, drying cabinet, and gas-heated auxiliary water circulator.

The kitchen was much admired and has been the source of many enquiries for the conversion of existing kitchens as soon as the equipment is available.

Every Joint Sound!



"Permac" Joints in a Gas Works.



"Permac" Joints in a Gas Works.

Ever since 1913 "PERMAC," the original Metal-to-Metal Jointing, has been holding up difficult joints like these in important Gas Works and on Coke Oven Plants all over the world. Equally suitable for any joint—steam, water, gas, oil — screw pipe or flange.

Send for particulars

Permac
METAL-TO-METAL JOINTING MATERIAL

Sole Manufacturers:

THOMAS & BISHOP LTD
(formerly of 37, Tabernacle Street, London, E.C. 2)

Temporary address:
39, Arthur Road, Wimbledon Park, London, S.W. 19

PRODUCTS PRICES

The London Market Oct. 8.

The prices of Coal Tar Products are unchanged.

There have been two developments of interest in connexion with Coal Tar Products, the first being the cancellation of Government contracts for toluene, and the second the issue of the Control of Benzole and Allied Products Order, 1945 (S. R. & O. 1945, No. 1064), which came into force on Sept. 1 and brings all Coal Tar Spirits under one and the same Order.

As from March 5, by the Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), the maximum price of Pitch for briquetting has been increased to 60s. per ton f.o.r. supplying works, and the prices for Road Tar, as fixed by the Coal Tar Products Prices Order, 1943, S. R. & O. No. 1528, have been increased by one half-penny per gallon. There is also an increase of 5s. per ton in the price of standard Creosote/Pitch Mixture.

Coal Tar Products Prices (No. 2) Order, 1944 (S. R. & O., 1944, No. 1051), allows increases in the maximum prices for all forms of Naphthalene.

The Provinces Oct. 8.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 90's. 2s. 4d. to 2s. 6¾d., pure, 3s. 2¼d. Carbolic acid, 60's, anthracene, creosote oil (hydrogenation), coal tar oils (timber preservation, &c.), and strained anthracene oil controlled by the Coal Tar Products Prices Order, 1943, dated Oct. 20, 1943 (S. R. & O. 1943, No. 1528), operative from Nov. 15, 1943, Naphthalene controlled under S. R. & O. 1944, No. 1051, operative from Sept. 22, 1944.

Attention is called to Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), referred to on p. 305, "JOURNAL" of March 7.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Scotland Oct. 6.

There are signs of more life in this market with prices unchanged. Refined tar*: Yield to distillers is 5d. per gallon *ex* Works, naked. Creosote oil: Timber preserving quality,* 5½d. to 6½d.; hydrogenation oil,* 5⅞d.; low gravity or virgin oil,† 7¼d. to 7½d.; benzole absorbing oil,* 6½d. to 8d. per gallon. Refined cresylic acid* is 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha†: 7d. to 8d. per gallon. Solvent naphtha*: Basic prices delivered in bulk, 90/160 grade, 2s. 10d., and 90/190 Heavy naphtha, Unrectified 2s. 0½d.; Rectified 2s. 4d. per gallon. Pyridine†: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

* Price controlled. † Uncontrolled.

TRADE CARDS

FULL particulars of these spaces can be obtained on application to the Publishers. They are designed principally for the use of the firms whose display advertisements cannot be included owing to paper rationing.

BRITISH VACUUM CLEANER AND ENGINEERING CO. LTD.
Leatherhead - Surrey
Ashtead 866.
VACUUM CLEANING EQUIPMENT FOR GAS WORKS.

GRIFFITHS BROS. & CO. LTD.
Mack's Road, Bermondsey, London, S.E. 16. T/N BERmondsey 1151. T/A London Aquol Phone, London.
Paint, Enamel and Insulating Varnish Specialists. "FERRODOR" Metal Protection for protecting Gasholders and other Structural Works from the ravages of Corrosion.

SPENCER-BONECOURT LTD.
Wartime Address: Cambridge Road, Hitchin, Herts. T/N HITchin 907-8. T/A Bonecourt, Hitchin.
Specialists in Waste Heat Recovery. Waste Heat Boilers for Steam Generation from Waste Gases. Industrial Gas-fired Boilers, Tubes, Valves.

A. H. WILKES & COMPANY.
(Proprietors Wm. Allday & Co. Ltd.)
HeadOffice: 38a, Paradise Street, Birmingham 1.
Manufacturers of a wide range of specialized industrial gas appliances. "WILKES" soldering and brazing equipment. Blowers, Burners, Fans, Furnaces, for many specialized duties. Enquiries invited.

Address your orders and enquiries for
HUMIDINE
The unique anti-corrosion paint for gasholder cuppings, etc.
To the sole manufacturers:
ASPINALLS (PAINTS) LIMITED
CARLETON — SKIPTON — YORKS

LEONARD BOTT LIMITED
Holyhead Road, Wellington, Shropshire.
T/A Leonardbot, Wellington, Salop.
T/N Wellington Salop 320.
GASHOLDERS INSPECTED
Repairs and New Work Supervised.

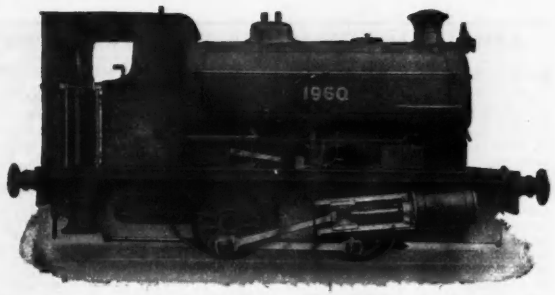
TOM CARRINGTON & CO. LTD.
Lyndon Toolworks, West Bromwich. T/N 0517 (2 lines).
"LYNDON" and "EGA-KUT"
SCREWING TOOLS;
TAPS; DIES; STOCKS AND DIES;
GROUND THREAD TAPS

FLAVELS of LEAMINGTON

STOVEMAKERS SINCE 1777.

Arkon
INSTRUMENTS
Gas Flow Recorders and Indicators
Pressure and Vacuum Recorders and Indicators
Full Scale or Inclined Gauges
WALKER, CROSWELLER & CO. LTD.
CHELTENHAM, GLOS. Cheltenham 5172

LOCOMOTIVES



LOCOMOTIVES of all Sizes and Gauges specially constructed for Main and Branch Lines, Contractors, Docks, Gas-Works, Collieries, Iron-Works, Brick and Cement Works, &c. Locomotives of various sizes always in progress for early delivery.

Photographs, Specifications, and prices on Application

PECKETT & SONS, Atlas Locomotive Works, **LTD., BRISTOL.**

Telegraphic Address: "PECKETT BRISTOL."

London Representatives: FERGUSON & PALMER, 9, Victoria St., Westminster, S.W.1

60% Sulphur absorbed by our

OXIDE

which has stood the test of 60 years.

Minimum Costs, Highest Efficiency

ESTABLISHED 1873

GAS PURIFICATION & CHEMICAL COMPANY LIMITED

PALMERSTON HOUSE, 34, OLD BROAD STREET LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

"KLEENOFF"

—THE COOKER CLEANER

Tins for Sale to Consumers. In Bulk for Works Use

OXIDE OF IRON.

SPENT OXIDE BOUGHT.

BALE & CHURCH, LTD.

33, ST. MARY AT HILL, LONDON, E.C.3.

Telephone: Mansion House 1156. Telegrams: "Balefire, London."

PATENTS

MEWBURN, ELLIS & CO.,

CHARTERED PATENT AGENTS

AND TRADE MARK AGENTS

70 & 72, Chancery Lane, London, W.C.2.

Telegrams: "Patent, London." 'Phone: Holborn 0437

And 3, St. Nicholas Buildings, Newcastle-on-Tyne.

REPAIR WORK

CLOCKWORK Controllers for Public Lighting Control and Time Switches, Clocks and all type of instruments and appliances operated by Clockwork Repaired, Overhauled and Guaranteed. Inquiries welcomed. J. W. & R. E. Hughes (Clockwork Engineers), 58, Victoria Street, London, S.W. 1. ('Phone Victoria 0134.)

TROTTER, HAINES & CORBETT LIMITED

FIRE-CLAY & BRICKWORKS

STOURBRIDGE

GAS RETORTS In BEST STOURBRIDGE QUALITY also SILICIOUS QUALITY 81% SILICA

HIGH GRADE INSULATING QUALITY FIREBRICKS

REGENERATIVE TUBES & TILES

PLANT &c.

FIRTH BLAKELEY, SONS & CO., LTD. Vulcan Ironworks, Church Fenton, Yorks.

MANUFACTURERS of Gas-holders, Tanks, Condensers, Purifiers, Scrubbers, Washers, and every description of Gas Plant.

Sole Makers of the "P.M" semi-water Gas Plant.

Telegrams: **"Blakeleys, Church Fenton."**

Telephone: **Barkston Ash 234 and 235 (Private Branch Exchange). Code: "Bentleys."**

ROBERT DEMPSTER & SONS, LTD., ELLAND, Builders of CARBONIZING PLANTS, both Horizontal and Vertical. Manufacturers of CONDENSERS, PURIFIERS, GAS-HOLDERS, &c., also every description of COAL and COKE HANDLING PLANT. *Telegrams:* **"Dempster, Elland."** *Telephone:* **Elland 2241, 2242 and 2243.**

STRACHAN & HENSHAW LTD. BRISTOL.

MANUFACTURERS and CONTRACTORS for

HANDLING PLANT

SCREENS, TIPPLERS, ETC.

PLANT &c. FOR SALE & WANTED

'PHONE 98 STAINES.

FOR SALE.—24 ft. by 9 ft. and 17 ft. by 6 ft. Cylindrical Tanks; Thompson Lancashire Boiler 24 ft. by 7 ft., 120 lb.; 34 kw. Browett 220 volt Steam Generating Set; Weir Feed Pump 8½ in. by 6 in. by 18 in.; Tangye 3-Throw Hydraulic Pump 3½ in. by 6 in.; Receiver 30 ft. by 7 ft. dia., dish ends ½ in. plate.

HARRY H. GARDAM & CO., LTD., STAINES.

AIR MINISTRY HYDROGEN PRODUCING PLANTS

THE Air Ministry is about to dismantle a number of these Plants, which are situated on sites leased from various Gas Undertakings throughout the country, and invites applications from potential purchasers requiring ancillary plant in the following categories:—

1. Gas Holders, Column Guided and spiral, capacity from 10,000 cu.ft. to 80,000 cu.ft.
2. Complete sets of purifiers (12 ft. by 12 ft. and 15 ft. by 15 ft.) with pre-heaters and connections.
3. B.M. and Connersville type Meters, capacity from 12,000 cu.ft./hour to 30,000 cu.ft./hour.
4. Lancashire and Vertical boilers, 80 lb. to 120 lb. p.s.i. working pressure, hand fired, capacity from 1,200 lb. steam/hour to 3,500 lb. steam/hour. With or without feed pumps.
5. Air Blowers, Hydrogen and Water Gas Exhausters, complete with driving Motor or steam engine, capacity from 12,000 cu.ft./hour to 180,000 cu.ft./hour.
6. Water Gas Plants suitable for conversion to carburetting plants complete with scrubbers. Automatic and hand operated. Capacity from 375,000 cu.ft./day to 800,000 cu.ft./day.
7. Coke filled scrubbing towers and Caustic soda scrubbing towers complete with mixing chambers.
8. Lymn Washing Towers.
9. Water cooling towers of varying capacity.
10. Water softening plants of varying capacity.
11. Water pumps of varying capacity complete with driving motor or steam engine.

Plant will be offered for sale by competitive tender and as standing erected. Facilities for inspection will be provided. Purchasers will be required to arrange for dismantling, loading and removing.

Tender forms, giving full particulars of the plant available for disposal, will be issued from time to time as Hydrogen Plants are scheduled for dismantling. Those desiring to receive Tender forms should apply by letter briefly stating their requirements to the Under Secretary of State, Air Ministry, (C.44(a)), Kingsway, London, W.C. 2.

STREET LIGHTING

STEEL LAMP COLUMNS for sale. 9 to 14 feet out of ground—large quantity available. Address No. 9476, "GAS JOURNAL," 11, Bolt Court, Fleet Street, E.C. 4.

PLANT, &c. (continued)

GASHOLDER

FOR SALE.—Two lift spiral guided GASHOLDER *without* tank. Inner lift 64 ft. diam. by 20 ft. deep, throws 3 in. w.g. pressure. Outer lift 66 ft. diam. by 20 ft. deep, throws 5 in. w.g. pressure. 8½in. diam. inlet and outlet connexions. Capacity 140,000 cu.ft. approximately. Originally built in 1921 by Robert Dempster & Sons, Ltd., Elland. Can be inspected by appointment. This holder will need re-sheeting. Enquiries to Gas Engineer, Gas-Works, Colne, Lancs.

BOROUGH OF CHESTERFIELD

GASHOLDER FOR SALE

SINGLE lift Column Guided HOLDER in Steel Tank, built by Messrs. Newton Chambers & Co., Ltd., in 1915. Capacity 155,000 cu.ft. Pressure thrown 4 in. Tank dimensions allow for additional lift.

Situated at Whittington Gas-Works, near Chesterfield. In good condition and suitable for re-erection.

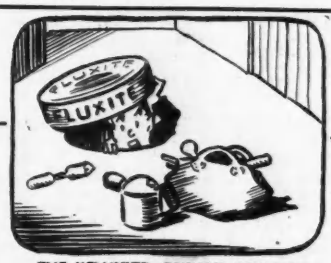
For Conditions of Sale and Inspection apply Gas Engineer, Gas-Works, Chesterfield.

Offers to be sent to the undersigned in sealed envelopes marked "Whittington Holder" not later than October 31, 1945.

The Council reserve the right not to accept the lowest or any tender submitted.

Town Hall, Chesterfield. October 1, 1945.

RICHARD CLEGG, Town Clerk.



THE "FLUXITE QUINS" AT WORK

"Buck up with that FLUXITE!" yelled OH,
You're holding us up down below."
Cried OI, "It's not here,
That's perfectly clear—"
"It's vanished — well — what d'ye know!"

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." It does not "poison" the solder nor corrode the metal—and can be used with safety even on sensitive apparatus.

With Fluxite, joints can be "wiped" successfully that are *impossible* by any other method.

FLUXITE has been used for over 30 years in Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS — In tins — 8d., 1s. 4d., and 2s. 8d. Ask to see the FLUXITE POCKET BLOW LAMP, price 2s. 6d.

The FLUXITE GUN puts FLUXITE where you want it by a simple pressure.

Price 1s. 6d. or filled 2s. 6d.

ALL MECHANICS *WILL* HAVE

FLUXITE

IT SIMPLIFIES *ALL* SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS." Price 1d. each.

Fluxite Ltd., (Dept. G.J.), Bermondsey Street, S.E.1

(Classified Advertisements continued on p. 510)

APPOINTMENTS WANTED

INDUSTRIAL GAS HEATING ENGINEER with 20 years' experience, including works and selling, well known in the Industry, desires appointment as REPRESENTATIVE OR AGENT for reputable firm. Good references. Address No. 9482, "GAS JOURNAL," 11, Bolt Court, Fleet Street, E.C. 4.

APPOINTMENTS VACANT

None of the situations advertised in these columns relates to a man between the ages of 18 and 50 inclusive or a woman between the ages of 18 and 40 inclusive, unless he or she is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

GENERAL FOREMAN

APPLICATIONS are invited for the Position of GENERAL FOREMAN at a works in the Home Counties. Applicants should have had experience of horizontal and vertical retorts and water gas manufacture. Commencing wage £7 per week.

Apply, stating Age, Experience and position in relation to the Essential Works Order, and include *copies* of recent Testimonials, to No. 9481, "GAS JOURNAL" 11, Bolt Court, Fleet Street, E.C. 4.

BOROUGH OF ILKESTON

APPLICATIONS are invited for the permanent position of TECHNICAL ASSISTANT to the above Undertaking at a commencing Salary of £280, rising in increments of £15 to £370 per annum, in accordance with Grade "F" of the Council's Grading Scheme, plus cost of living bonus.

Candidates should have experience in the operation of Gas-Works plant, particularly W-D. Vertical Retorts, and should also have experience in Practical Gas Works Chemistry.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a Medical Examination.

Applications, marked "Technical Assistant," stating position under National Service Acts and Essential Works (General Provisions) Order, and giving full particulars of Age, Training, Experience, and Qualifications, with *copies* of three recent Testimonials, to be received by the undersigned not later than Monday, October 15, 1945.

Canvassing, directly or indirectly, will disqualify.

Town Hall, E. I. E. WILLIAMS,
Ilkeston. Town Clerk.
October 1, 1945.

MAIDSTONE GAS COMPANY

WORKS CHEMIST

APPLICATIONS are invited for the Position of WORKS CHEMIST to the above Company. The salary offered of £300 per annum, plus War Bonus of £62 per annum.

Candidates should be able to carry out all Laboratory work attendant upon the efficient work of the Gas-Works Plant, including C.W.G. and Benzole Production.

A knowledge of the control of modern Horizontal Retort Settings would be an advantage.

Applications, stating present position, and giving details of Education, Training, and Experience, together with *copies* of two Testimonials, should be delivered to the undersigned not later than October 31, 1945.

Gas-Works, W. A. HOWIE,
Maidstone. Engineer and Manager.

THE BATH GAS COMPANY

APPLICATIONS are invited for the Position of OFFICE MANAGER to be responsible for the control of the whole of the clerical staff (with the exception of the Secretarial staff) under the supervision of the General Manager.

Applicants must have had a good education, and have wide experience in office management, cost control, and the organization of selling schemes.

Remuneration will be not less than £600 per annum.

Applications, stating Age, Qualifications, Experience, and particulars of present employment, together with *copies* of three recent Testimonials, should be received by the undersigned not later than October 22, 1945.

18-19, Old Bond Street, CHARLES BATEMAN,
Bath. General Manager.

EXPERIENCED GASFITTERS and SERVICE LAYERS required immediately. Rate 1s. 9½d. per hour. Opportunities for Servicemen expecting early release. Applications, giving full particulars of training and position under Essential Works Order, should be sent to General Manager, Peterborough Gas Company, New Road, Peterborough.

This advertisement is published by permission of the Ministry of Labour and National Service under the Control of Engagement Order, 1945.

THE LIVERPOOL GAS COMPANY require the services of a PRINCIPAL CHEMIST for their Garston Works. The successful applicant will be responsible for the whole of the Works Laboratory operation, and will be required to operate under the Works Manager in liaison with the Company's skilled Laboratory administration.

Applicants should be familiar with modern vertical and horizontal retort practice and fully automatic water gas manufacture.

The salary required will be by arrangement, and not less than £500 per annum inclusive of all bonuses.

Application should be made on the official form, which may be obtained by writing to the Personnel Superintendent, Radiant House, Bold Street, Liverpool, 1, and should be returned to him not later than October 22.

APPOINTMENTS VACANT (ctd.)

NEWTON CHAMBERS & CO., LTD., Thorncliffe Sheffield, require the services of two SENIOR DRAUGHTSMEN experienced in the preparation of drawings for gas-works plant. Applications, which will be treated in the strictest confidence, stating Age, Experience, and Salary required, should be sent to the Personnel Officer.

URBAN DISTRICT OF SPENBOROUGH

DEPUTY GAS ENGINEER AND MANAGER

APPLICATIONS are invited for the Appointment of DEPUTY GAS ENGINEER AND MANAGER at a commencing Salary of £450 per annum, rising by two annual increments of £25 to £500, plus war bonus, at present £59 16s. per annum. In determining the commencing salary, regard will be paid to qualifications and experience.

Applicants must have experience in plant maintenance and extension works and be qualified to supervise, under the direction of the Gas Engineer, all departments of the Undertaking, which has a make of 580 millions cubic feet per annum.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, stating Age, Qualifications, and Experience, accompanied by *copies* of three recent Testimonials, and endorsed "Deputy Gas Engineer and Manager," must be delivered to me not later than Saturday, October 27, 1945.

Town Hall, D. COUPE,
Cleckheaton. Clerk of the Council.
October 6, 1945.

THE COUNTY BOROUGH OF ROCHDALE

(GAS DEPARTMENT)

APPLICATIONS are invited for the Position of CHEMICAL PLANT DRAUGHTSMAN. Applicants should be qualified Engineers (A.M.I.Gas E. or its equivalent).

The salary paid will be in accordance with Grade "C" of the Professional, Technical and Administrative Division of the Corporation's Grading Scheme (£320, rising by annual increments of £15 to £350 per annum, plus war bonus, which is at present £59 16s.).

Applications, stating Age of applicant, accompanied by *copies* of two recent Testimonials and endorsed "Chemical Plant Draughtsman," should be addressed to the Engineer and Manager, Gas-Works, Dane Street, Rochdale, and must be received not later than October 27, 1945.

The Ministry of Labour and National Service have given permission under the Control of Engagement Order, 1945, for the advertisement of this vacancy.

Town Hall, G. F. SIMMONDS,
Rochdale. Town Clerk.
Oct. 3, 1945.

COUNTY BOROUGH OF SOUTHPORT GAS DEPARTMENT

APPOINTMENT OF DEPUTY GAS ENGINEER

THE Council invite applications for the Position of DEPUTY GAS ENGINEER at a commencing salary of £600 per annum, rising by annual increments of £50 to a maximum of £700 per annum, plus the appropriate cost of living bonus.

Applicants must possess gas engineering qualifications, a thorough knowledge of and experience in the control of Gas-Works Plant and Processes, and experience in the supervision and control of labour.

The appointment will be determinable by either side on one month's notice and will be subject to the provisions of the Local Government Superannuation Act, 1937. The selected candidate will be required to pass a medical examination.

Applications, stating Age, Qualifications, present appointment and duties, and full details of Experience, accompanied by *copies* of not more than three recent Testimonials, must be delivered to the undersigned endorsed "Deputy Gas Engineer" not later than Wednesday, October 24.

Canvassing, directly or indirectly, will entail disqualification.

Town Hall, R. EDGAR PERRINS,
Southport. Town Clerk.
October 3, 1945.

CONTRACTS OPEN

COUNTY BOROUGH OF OLDHAM

HIGGINSHAW GAS-WORKS

THE Oldham Corporation Gas-Works Committee is prepared to receive Tenders for the Supply, Delivery and Erection of a Five Million cubic feet per day PURIFIER INSTALLATION at the above Works.

Specification and Drawings may be obtained on application to F. Greenhalgh, Esq., M.Inst.Gas E., Engineer and General Manager, Gas Offices, Greaves Street, Oldham.

No Tender will be received except in a plain sealed envelope, endorsed "Tender for Purifiers," not bearing any name or mark indicating the sender, and addressed to the Chairman of the Gas-Works Committee, Gas Offices, Greaves Street, Oldham, and received not later than 10 a.m. on Monday, November 5, 1945.

The Corporation do not bind themselves to accept the lowest or any Tender.

The Contract will be subject to the Standing Order of the Council with respect to Contracts which include a requirement (in certain cases) for the provision of Sureties.

Town Hall, THOMAS ALKER,
Oldham. Town Clerk.
October 2, 1945.

CONTRACTS OPEN (ctd.)

DUMFRIES CORPORATION

(GAS DEPARTMENT)

TENDERS are invited for the RESETTING of one Through Bed of 8 Horizontal Retorts. Full particulars may be obtained from the Engineer and Manager, Gas-Works, Dumfries.

Tenders in plain sealed envelopes endorsed "Resetting Retorts" to be addressed to the undersigned and received not later than November 12, 1945.

Municipal Chambers, J. HUTCHEON,
Dumfries. Town Clerk.
October 6, 1945.

CITY OF PLYMOUTH

(GAS DEPARTMENT)

THE City of Plymouth Gas Department invite Tenders for the REPAIR of the COAL BUNKERS at Pottery Quay, Pottery Road, Devonport, or alternatively for the replacement by Concrete Hoppers.

Plans and Specifications can be obtained on application to the undersigned.

Tenders should be endorsed either "Repairs to Coal Hoppers" or "Supply and Erection of New Concrete Coal Hoppers." These should be addressed to the Town Clerk, Pounds House, Peverell, Plymouth, and must be received not later than the first post on Saturday, November 10, 1945.

Gas-Works, F. BLACKBURN, A.M.Inst.C.E.,
Devonport. A.M.I.Mech.E., M.Inst.Gas E.,
October 4, 1945. Engineer and General Manager.

EDUCATIONAL

ENGINEERING CAREERS AND QUALIFICATIONS

Both Government and Industry announce and emphasize that young men with technical knowledge and qualifications are to have every chance of rising to the highest posts within their capacity in post-war engineering and allied industry.

Write to-day for **"The Engineer's Guide to Success"**—200 courses—free—which gives the regulations governing qualifications such as **A.M.I.Gas E., A.M.I.Chem.E., A.M.Inst.C.E., A.M.I.Mech.E. A.M.I.E.E., C. & G.,** etc., and contains the widest choice of engineering courses in the world; the Department of Fuel and Chemical Technology covers **Gas Supply, Gas Engineering, Gas Power, Chemical Processes,** etc. The **T.I.G.B.** guarantees training until successful and **Home-study students of the T.I.G.B. have gained 44 FIRST PLACES** in the examinations of the major engineering institutions.

THE TECHNOLOGICAL INSTITUTE OF GREAT BRITAIN

148, TEMPLE BAR HOUSE, LONDON, E.C.4

PUBLICATIONS

GAS ACCOUNT CALCULATORS

SUPPLIED either by Price per Therm or Thousand, for any specified Calorific Value, in book form, office charts, or pocket charts for Meter Inspectors, printed in clear type. Write for particulars to F. H. WAKELIN, LTD., Calculator Specialists, 354, WHEELER STREET, BIRMINGHAM.

'Phone: Northern 0989. 'Grams: Reckoners, B'ham.

CLASSIFIED ADVERTISEMENTS

Situations Wanted (prepaid), six lines and under (about 36 words), 4/6 per insertion. Each additional line (about six words), 9d.

Situations Vacant, Plant Wanted and for Sale, Contracts, Notices, &c., 1/- per line, with a minimum of 5/-. Box number charge, 6d.

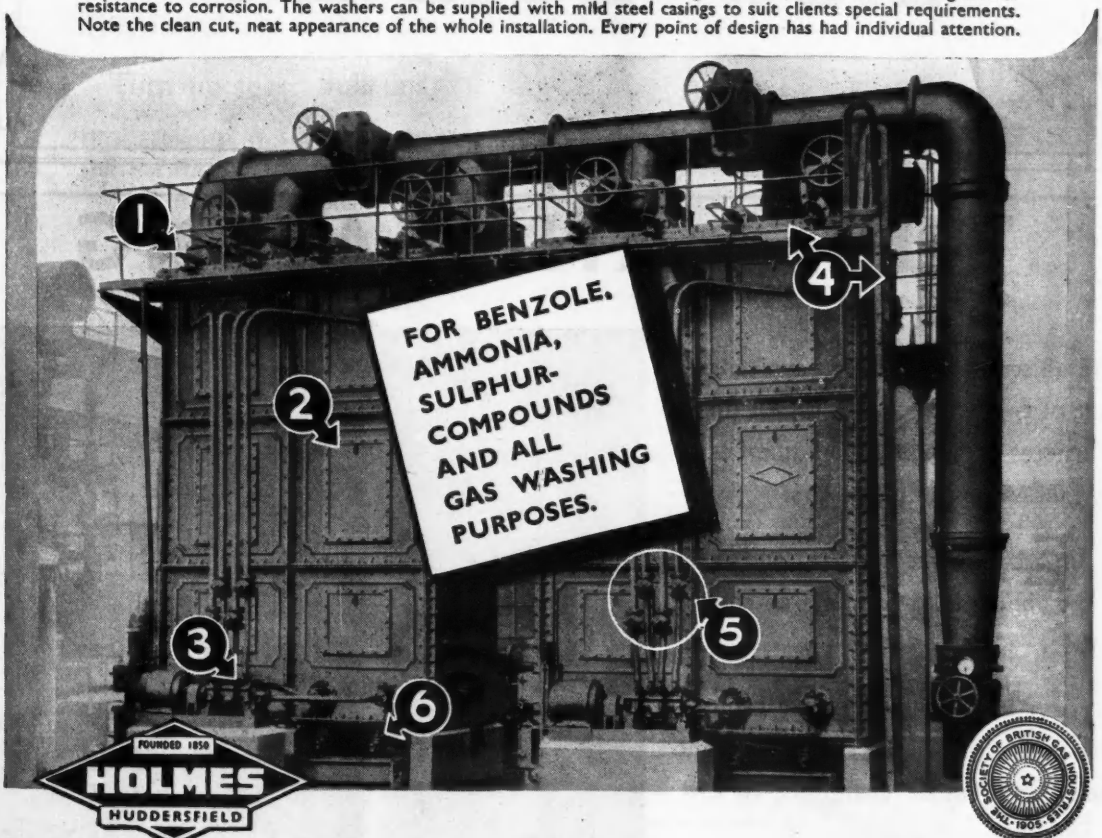
To ensure insertion, copy for Classified Advertisements should be received on the Friday preceding publication date.

HOLMES 'Multifilm' BRUSH WASHERS

Special Features and Advantages

1. **Pat. No. 357,712.** Easy-clean sprays, always visible. Can be cleaned from outside the washer without interrupting flow of liquor. Sight glasses cleaned internally by a simple operation without opening washer.
2. **Pat. No. 331,818.** Brush filling arranged vertically to give good self cleaning properties. Large manholes back and front give ready access to the filling which is easily removed and replaced.
3. **Pat. No. 389,653.** Monobloc Multiple Pump. Four or six pumps in one casing with one gland only to the block of pumps. Tested and proved by over ten years of experience. Over four hundred in use.
4. **Ladder and Platform.**—giving easy access to sprays and gas valves. Note the compact arrangement of connections and gas valves.
5. **Circulating Pump Connections.** Compact and neatly arranged. All suction and delivery cocks are close together and readily accessible.
6. **Drain cocks and trough.** Conveniently arranged for removing sludge or draining the washer.

Cast Iron Construction. We recommend the use of cast iron for the casings of the washers, to ensure long life and resistance to corrosion. The washers can be supplied with mild steel casings to suit clients special requirements. Note the clean cut, neat appearance of the whole installation. Every point of design has had individual attention.



HUDDERSFIELD
Telegrams : "Holmes, Huddersfield"
Telephone : Huddersfield 5281 (4 lines)

BIRMINGHAM
Telegrams : "Biprodeng, Birmingham"
Telephone : Midland 6830

LONDON
Telegrams : "Ignitor, Sowest, London"
Telephones : Victoria 9971-2-3

SURBITON
Telegrams : "Watson, Elmbridge, 3820"
Telephone : Elmbridge 3820

W. C. HOLMES & CO. LTD . TURNBRIDGE . HUDDERSFIELD

C210

GEO. BRAY & CO. LTD.

LEEDS 2

Makers of the Famous

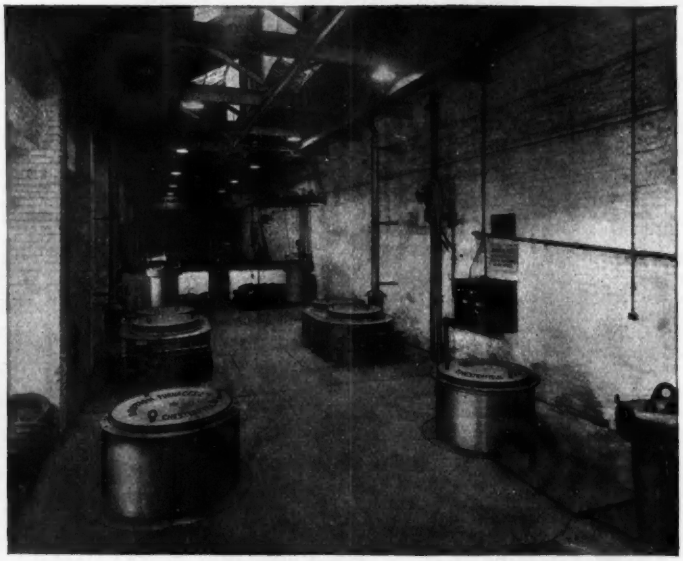
BRAY BURNERS

WIRE ANNEALING

THE illustration indicates a typical lay-out of two units of pot type annealing furnaces as supplied to a number of important Wire Manufacturers.

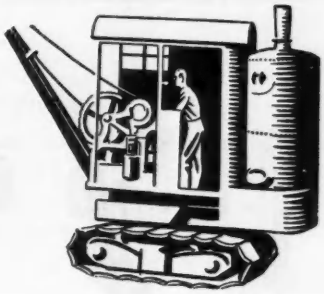
Each unit comprises preheat and heating chambers followed by a cooling chamber.

Units can be supplied to suit requirements with regard to pot size and capacity, but usual charge is 10 cwt. per pot.



Consult **BRITISH FURNACES LTD CHESTERFIELD**

The better use of POWER



Where to look for further economies

YOU MAY HAVE DECIDED that you have reached the limit of improvement in efficiency of power usage. But are you sure? Why not make doubly sure by going through these Bulletins *point by point?* If your search reveals only a single possibility it will have been well worth while. The probability is that you will find many.

Turn up these Bulletins:

FUEL ECONOMY BY SAVING ELECTRICITY
(*Bulletin No.* 13)

A rapid survey of the possibilities. Brief, practical pointers that take you straight to sources of substantial economy in electricity consumption.

THE INDUSTRIAL USE OF COMPRESSED AIR
(*Bulletin No.* 29)

Compressed air is a very convenient medium of power transmission. But it can also be a great waster of power unless carefully supervised and maintained. This Bulletin tells you what to look for and how to put it right.

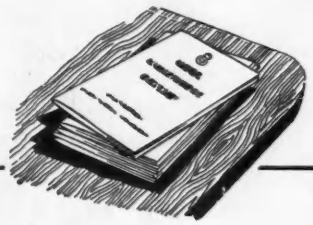
FUEL ECONOMY AT COLLIERIES
(*Bulletin No.* 32)

The colliery official will find this Bulletin a real boon. It is a guide to the economical operation of colliery compressed air plant, but it also contains a brief summary of hints on steam boilers, prime movers, fans, pumps and so on.

SMALL VERTICAL BOILERS, STEAM CRANES AND SHUNTING ENGINES (*Bulletin No.* 37)

These power units are often neglected. How fuel losses can be reduced and operation improved is explained in a very practical way.

UNTIL YOU HAVE looked into the possibilities of every recommendation in these Bulletins you ought not to decide that your power is being used efficiently. If you haven't all the Bulletins ready at hand, please ask for the copies you need from the Regional Office of the Ministry of Fuel and Power.



ISSUED BY THE MINISTRY OF FUEL AND POWER

PUMPS
FOR GAS WORKS

Fig. 105
LIFT PUMP FOR GAS SYPHONS. EXCLUDING 24 FT. DEEP

Fig. 256
BELT DRIVEN SINGLE RAM PUMP FOR 40 LBS. PER SQ. INCH.

Fig. 257
BELT DRIVEN SINGLE GUIDED RAM PUMP FOR 60 LBS. PER SQ. INCH.

PLEASE APPLY FOR CATALOGUE No. 8A.

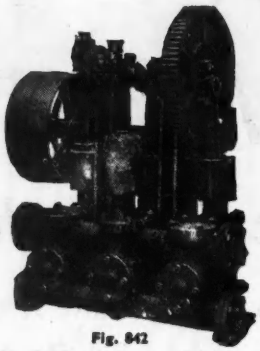


Fig. 842
VERTICAL TREBLE RAM PUMP FOR 150 LBS. PER SQ. INCH.

Fig. 187
DOUBLE ACTING HORIZONTAL PUMP.

Fig. 69
COVERED HEAD CHAIN PUMP.

Fig. 324
BELT DRIVEN DOUBLE BARREL PUMP FOR DEEP WELLS

TRADE MARK LION

JOSEPH EVANS & SONS
(WOLVERHAMPTON) LTD.

WRITE FOR CATALOGUE 111.

WALKER'S LION PACKING

PACKINGS & JOINTINGS

• WE SOLVE MODERN PACKING & JOINTING PROBLEMS — IT IS OUR SOLE BUSINESS •

JAMES WALKER & Co. LTD

"LION" WORKS. WOKING, SURREY, ENGLAND.
Phone: WOKING 2432 'Grams: "LIONCELLE."

specify

Fig. 118

B.G.F. TYPE
PEEBLES SERVICE
GAS GOVERNOR
WITH COMPENSATED
VALVE

With the country faced with a shortage of 7,000,000 tons of coal the Gas Advisor to the Ministry of Fuel suggests the Gas Industry should tell consumers to use *less* gas during the critical period.

The most practical way to make gas go further is to cut out all waste. In countless buildings gas is wasted through pressure irregularities. This can be corrected by using Peebles Service Governors. With these there is no waste of gas. Every foot paid for is used *usefully*.

Peebles GOVERNORS

Sample of Peebles Service Governor sent for test to any Gas Manager on request

PEEBLES & CO. LTD., TAY WORKS, BONNINGTON, EDINBURGH

Telephone: LEITH 36544 Telegrams: Tangent, Edinburgh

E.I.H.

THESE FEATURES have made the ELECTRIC EEL *famous*

- **Patented "Instinctive Steering" reducing fatigue, and allowing operation by unskilled operators of either sex.**
- **Transmission troubles eliminated by means of independently motorised wheels.**
- **Simple foolproof controls.**
- **Can be driven with the operator facing in either direction with ease, precision and perfect control.**
- **3 speeds in both directions.**
- **Electric-Mechanical elevating platform.**
- **Robust all-welded construction, ensuring long trouble-free service.**

STEEL

ELECTRIC EEL

Electric Eel Trucks are functionally designed for each job they have to do—and built to give many years of strenuous service. The production programme includes types for every industry—write for full details.

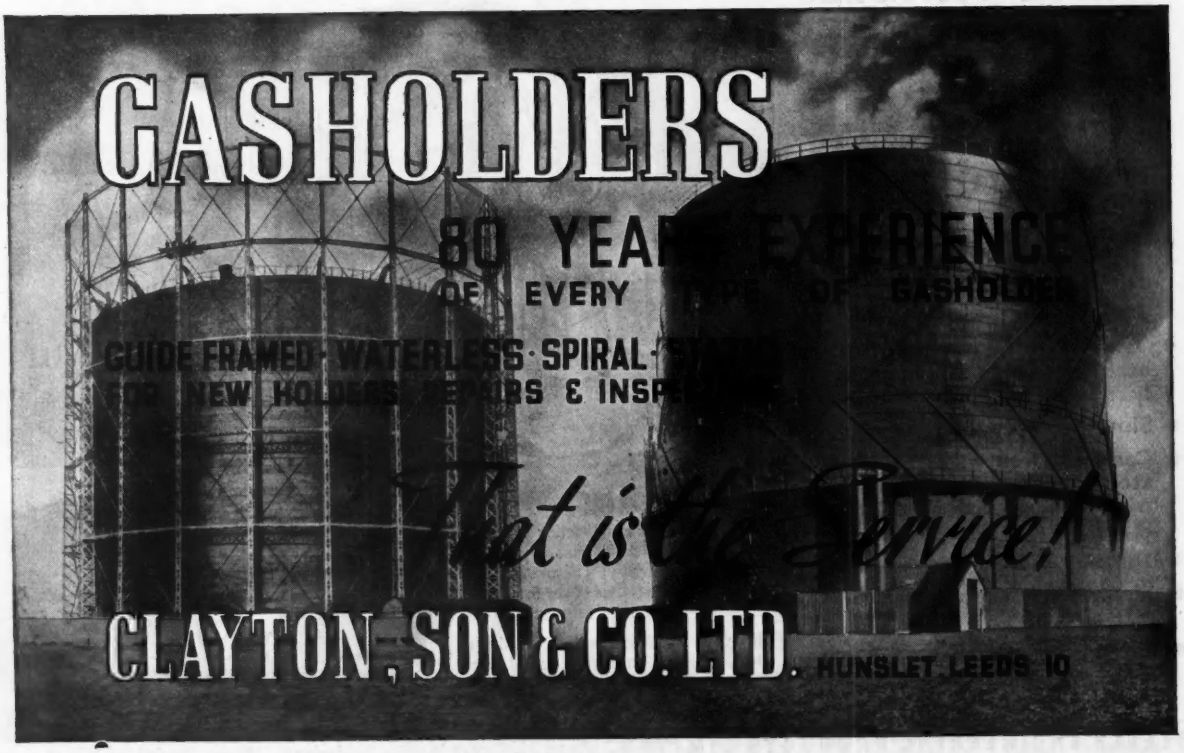
If you are interested in short haulage road transport, send also for details of Q Electric Vehicles.

STEELS ENGINEERING PRODUCTS LIMITED. Dept. 22, Crown Works, Sunderland. *'Phone: Sunderland 3236 (7 lines)*

GAS METERS
for
INDUSTRIAL ESTABLISHMENTS
made to any capacity required.

WILLEY & CO. LTD

EXETER


GASHOLDERS
80 YEA EXPERIENCE
OF EVERY GASHOLDER
GUIDE FRAMED WATERLESS SPIRAL
FOR NEW HOLDERS RS & INSP
That is the Service
CLAYTON, SON & CO. LTD. HUNSLET LEEDS 10

"TULLY" GAS

THE IDEAL GAS SUITED TO ALL MODERN NEEDS

ECONOMICAL IN USE AND CHEAP TO PRODUCE

THERE ARE SEVERAL HUNDRED "TULLY" PLANTS IN USE AND NUMEROUS GAS WORKS ARE SENDING OUT ALL "TULLY" GAS

Sole Makers and Patentees:

TULLY, SONS & CO., LTD.
MILLGATE,
NEWARK-ON-TRENT, ENGLAND.

DETEL

(PRONOUNCED DEE-TELL)

High Duty Coatings

THE OUTSTANDING anti-corrosives of the War

DETEL PRODUCTS LIMITED
GREENFORD, MIDDLESEX

Cables, Telegrams: Detel, Phone, London.
Telephone: WAXlow 1337.

CONTRACTORS TO ADMIRALTY AND ALL DEPARTMENTS OF H.M. GOVERNMENT.

Help consumers to keep their OWN cookers CLEAN

STOCK KLEENOFF IN YOUR SHOWROOMS

Kleenoff
The cooker cleaner

10D. Price Unchanged per large tin, retail

Supplied in ¼-cwt. drums and 14-lb. tins extra strong for use in Stove Shops

THE KLEENOFF Co., 33, St. Mary-at-Hill, LONDON, E.C. 3
(Proprietors: Bale & Church, Ltd.) Phone: Man. 1156

KING ELECTRIC BLOCKS LIFT A LOAD BY FINGER TIP CONTROL

Speaking of pressing a button and getting the work done! Into the air and along it goes—just as easy as that. Three models available: ranging in capacity from 5 cwt. to 10 tons, all built for continuous heavy duty. Overhead runways erected if required.

Write for booklet on Lifting & Shifting

GEO. W. KING LTD HITCHIN · HERTS ·
HITCHIN 960 (10 lines) | MANCHESTER CENTRAL 3947 | NEWCASTLE 24198 | GLASGOW DOUGLAS 2798

"KEITH" ROTARY COMPRESSOR

For compressing Gas or air up to 5 lbs. per square inch.

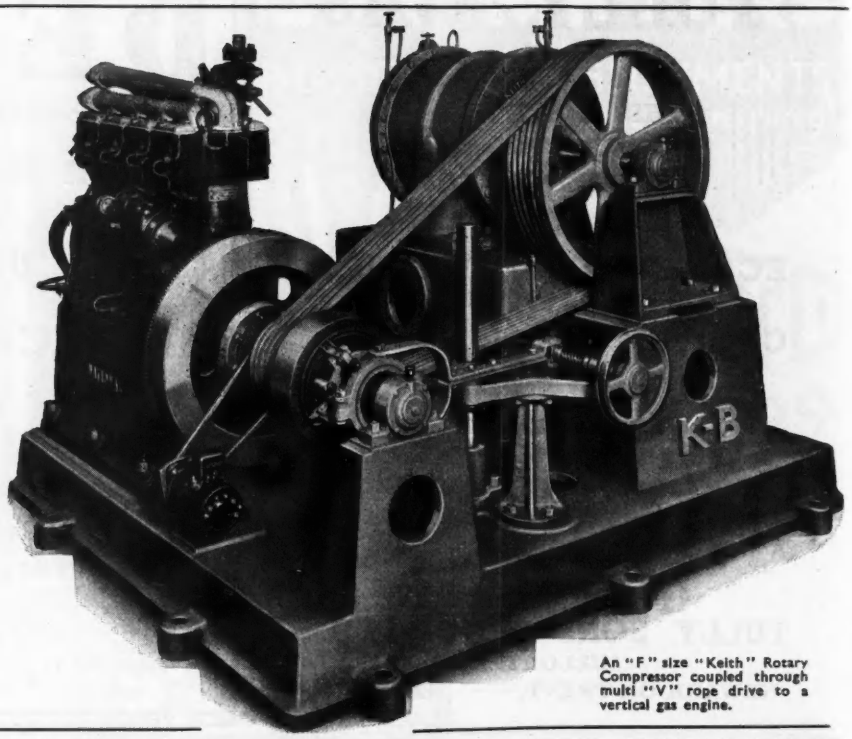
Volumes up to 20,000 c. ft. per hour.

VARIOUS DESIGNS AND SIZES

Any drive.

First-class material and workmanship.

KEITH BLACKMAN LTD.
MILL MEAD ROAD, LONDON, N.17.
'PHONE: TOTTENHAM 4522.
'GRAMS: KEITHBLAC, PHONE, LONDON"



An "F" size "Keith" Rotary Compressor coupled through multi "V" rope drive to a vertical gas engine.

STEEL
STRENGTH
SECURITY

Structural Steelwork for the gas industry

REDPATH BROWN

& CO. LTD., LONDON, EDINBURGH, GLASGOW, MANCHESTER, BIRMINGHAM, BRIGHTON, GLOUCESTER, HULL, LEEDS, LIVERPOOL, NEWCASTLE, SHEFFIELD, SOUTHAMPTON, BELFAST. LONDON OFFICE: 26A ALBEMARLE STREET, W.I.
Telephone: REGENT 0345.

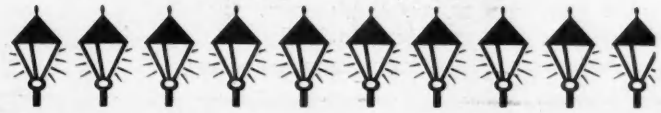
Printed by Straker Brothers, Ltd., London, E.C.2, for Walter King, Limited, 11, Bolt Court, Fleet Street, London, E.C.4.—Wednesday, October 10, 1945.

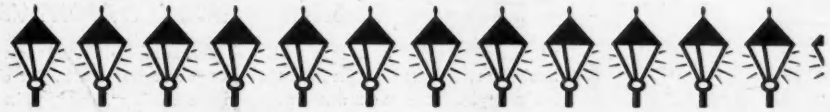
DO YOU KNOW

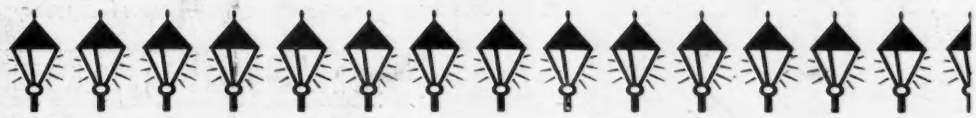
the extent to which gas is used in public lamps in peace-time?

EACH **= 1,000,000,000 cubic feet of gas sold by authorised undertakings for use in public lamps**

1922

1927 

1932 

1937 

This graphic representation of figures from Board of Trade returns shows only one of the ways in which the ever-expanding Gas Industry is called upon to serve the community.

Wherever Gas is consumed W. & B. Cowan will be equal to the growing task of measurement.

W.&B.COWAN

INCORPORATED IN PARKINSON & COWAN (GAS METERS) LTD.

FITZALAN STREET WORKS, KENNINGTON ROAD, LONDON

Branches at

MANCHESTER · NEWCASTLE-ON-TYNE · GLASGOW

Manufacturers of all types of quality appliances for the measurement and pressure control of Coal Gas

C.M.C.11

CONVEYORS,
ELEVATORS,
BUNKERS, ROOFS,
HOISTS, Etc.

GOODALL, CLAYTON & Co. LTD.
LEEDS.

COAL AND COKE
SCREENING & SIZING
PLANTS.

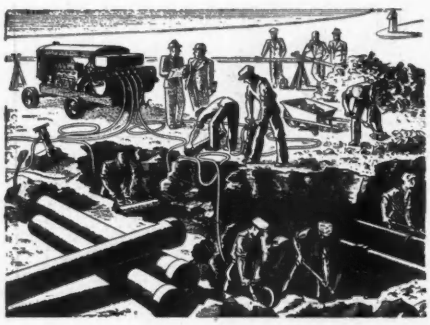
RETORT SETTINGS
PRODUCERS, FURNACES
REPAIRS.

SUPRETE

The Pioneer Metal to Metal Jointing Cement in Powder and Sheet Form.

Over 2000 Tons Supplied and STILL GOING UP

CLOUGH (Croydon) LTD.,
Progress Way, Purley Way, Croydon.
TELEPHONE: Croydon, 2627.



Gas Undertakings use "Broomwade" . . . .

portable Sleeve Valve Air Compressors, road breakers, rock drills, clay spades, backfill rammers and pneumatic tools for repair work, for clearing gas mains, main laying, testing mains, pumping, caulking joints, paint spraying, speedy replacement of services, reconstruction work, etc., etc.

Comparable with a Modern British Warship in Efficiency and Dependability

"BROOMWADE"

PATENT SLEEVE VALVE PORTABLE
AIR COMPRESSORS

BROOM & WADE LIMITED · HIGH WYCOMBE · BUCKS · 'PHONE: 1630 (8 LINES)

39.410A

MAINLAYING AND GASWORKS CONSTRUCTION OF ALL TYPES

EMERGENCY WORK
We have a Large Staff of skilled men on call at any hour of the day or night.

DEPOT PHONES
(DAY & NIGHT)
TOTtenham 2665/6 ADVance 3771
LIBerty 3229

Civil Engineering Contractors

'Phone: WHITEHALL 1752, 2961
'Grams: "UNWATER PARL."

WILLIAM PRESS & SON, 38, Old Queen St., London, S.W.1

Printed by Straker Brothers, Ltd., London, E.C.2, for Walter King, Limited, 11, Bolt Court, Fleet Street, London, E.C.4.—Wednesday, October 10, 1945.